

CHAPTER 4

POINT AND NONPOINT SOURCE CHARACTERIZATION OF THE WATTS BAR WATERSHED.

4.1 Background

4.2 Characterization of HUC-11 Subwatersheds

4.2.A. 06010201140

4.2.B. 06010201150

4.2.C. 06010201160

4.2.D. 06010201170

4.2.E. 06010201180

4.2.F. 06010201190

4.2.G. 06010201200

4.2.H. 06010201210

4.2.I. 06010201220

4.2.J. 06010201230

4.2.K. 06010201240

4.2.L. 06010201250

4.2.M. 06010201260

4.2.N. 06010201270

4.1 BACKGROUND. This chapter is organized by HUC-11 subwatershed, and the description of each subwatershed is divided into four parts:

- i. General description of the subwatershed
- ii. Description of point source contributions
- ii.a. Description of facilities discharging to water bodies listed on the 1998 303(d) list
- iii. Description of nonpoint source contributions

Information for this chapter was obtained from databases maintained by the Division of Water Pollution Control or provided in the WCS (Watershed Characterization System) data set. The WCS used was version 1.1 beta (developed by Tetra Tech, Inc for EPA Region 4) released in 2000.

WCS integrates with ArcView® v3.1 and Spatial Analyst® v1.1 to analyze user-delineated (sub)watersheds based on hydrologically connected water bodies. Reports are generated by integrating WCS with Microsoft® Word. Land Use/Land Cover information from 1992 MRLC (Multi-Resolution Land Cover) data are calculated based on the proportion of county-based land use/land cover in user-delineated (sub)watersheds. Nonpoint source data in WCS are based on data collected 1992–1998; nonpoint source data were reviewed by Tennessee NRCS staff.

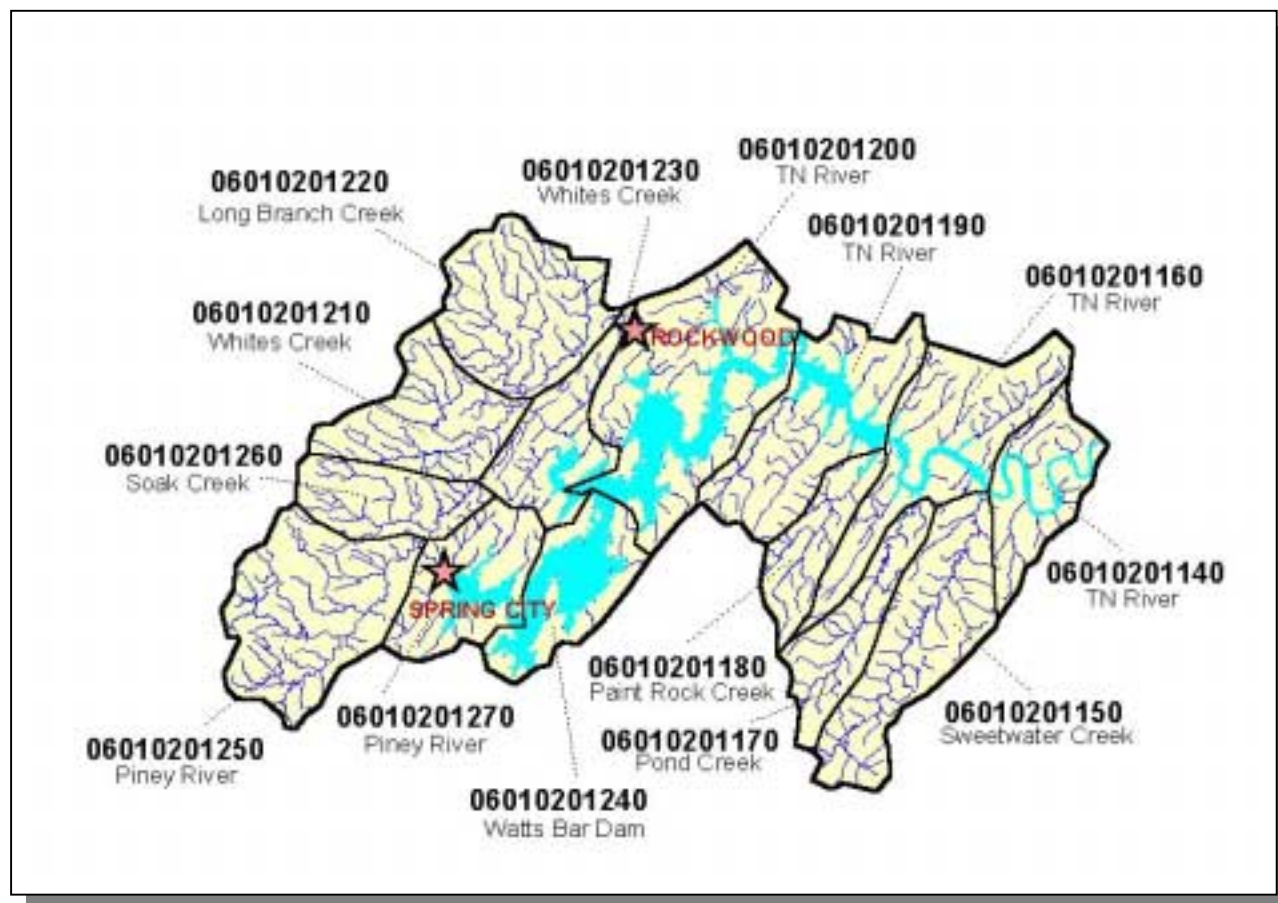


Figure 4-1. The Watts Bar Watershed is Composed of Fourteen USGS-Delineated Subwatersheds (11-Digit Subwatersheds). Locations of Rockwood and Spring City are shown for reference.

4.2. CHARACTERIZATION OF HUC-11 SUBWATERSHEDS. The Watershed Characterization System (WCS) software and data sets provided by EPA Region 4 were used to characterize each subwatershed in the Emory River Watershed. HUC-14 polygons were aggregated to form the HUC-11 boundaries for data analysis.

HUC-11	HUC-14
06010201140	06010201030020 (Tennessee River)
06010201150	06010201030040 (Sweetwater Creek)
06010201160	06010201030030 (Tennessee River)
06010201170	06010201030050 (Pond Creek)
06010201180	06010201030060 (Paint Rock Creek)
06010201190	06010201030070 (Tennessee River)
06010201200	06010201030080 (Tennessee River) 06010201030090 (Caney Creek)
06010201210	06010201040010 (Whites Creek)
06010201220	06010201040020 (Long Branch Creek)
06010201230	06010201040030 (Whites Creek)
06010201240	06010201030100 (Watts Bar Dam)
06010201250	06010201050010 (Piney River)
06010201260	06010201050020 (Soak Creek)
06010201270	06010201050030 (Piney River)

Table 4-1. HUC-14 Drainage Areas are Nested Within HUC-11 Drainages. USGS delineated the HUC-11 drainage areas. NRCS inventories and manages the physical database for HUC-14 drainage areas.

4.2.A. 06010201140.

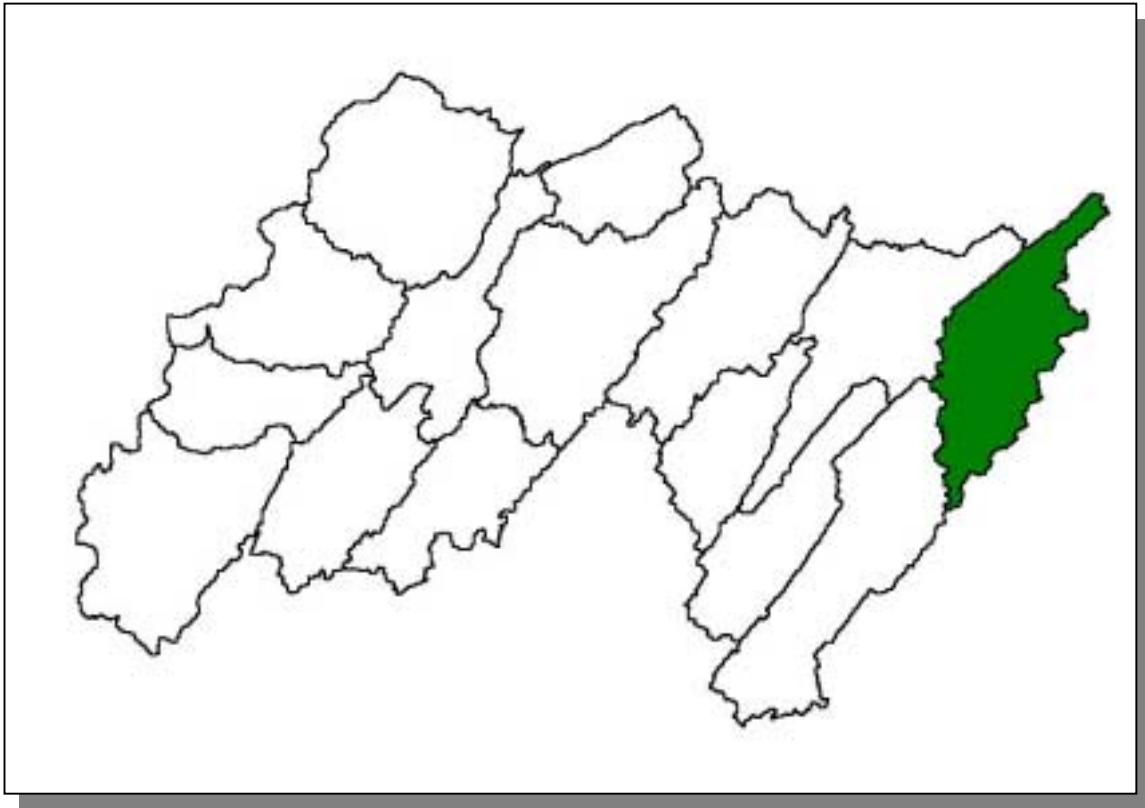


Figure 4-2. Location of Subwatershed 06010201140. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.A.i. General Description.

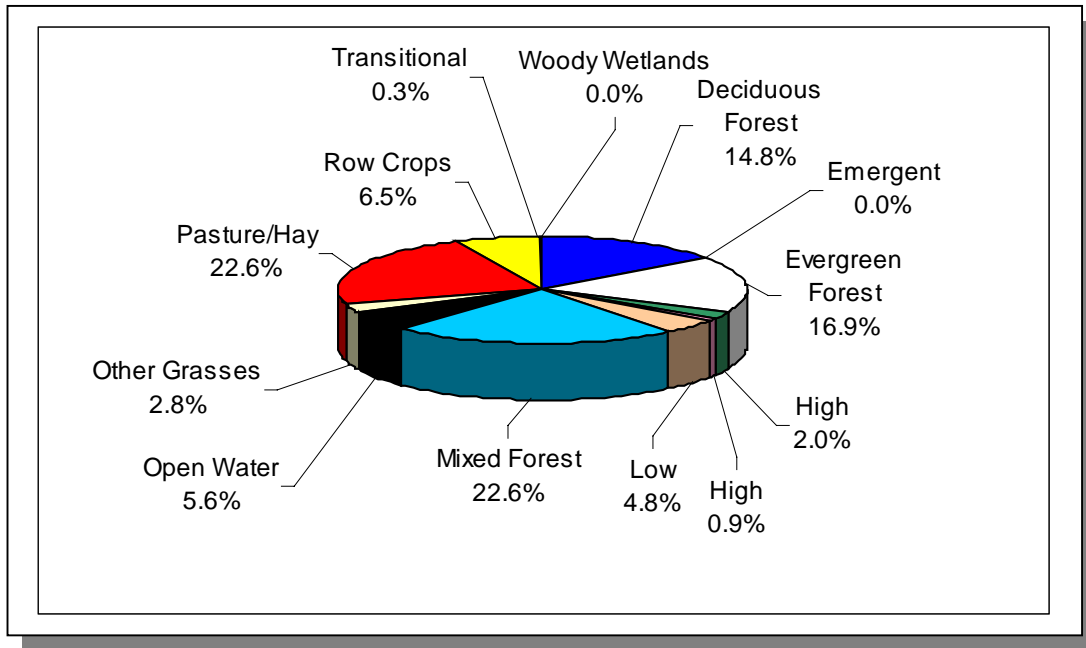


Figure 4-3. Land Use Distribution in Subwatershed 06010201140. More information is provided in Watts Bar-Appendix IV.

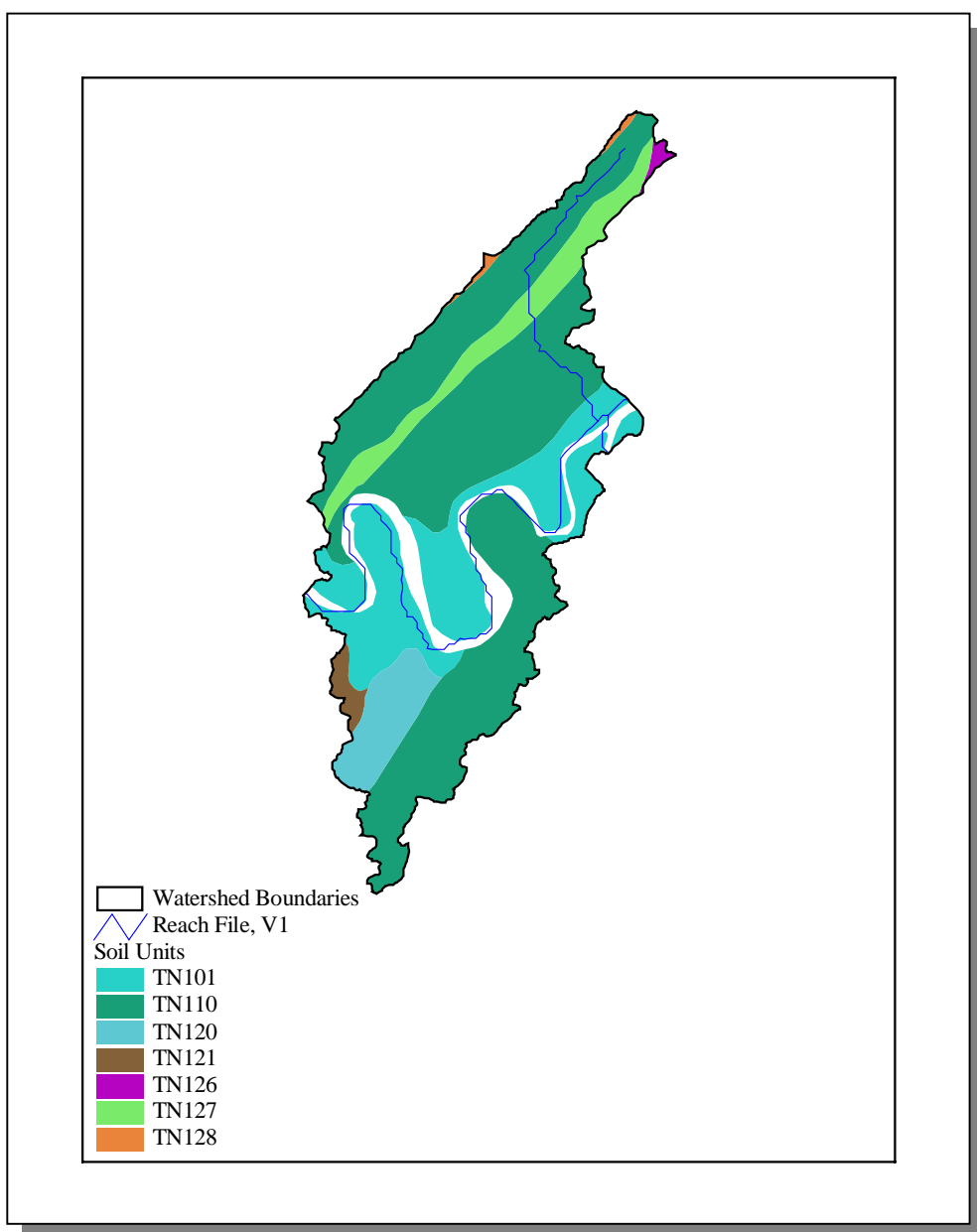


Figure 4-4. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201140.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN101	0.0	B	1.71	5.39	Loam	0.35
TN110	0.0	B	2.22	4.96	Loam	0.31
TN120	0.0	B	1.68	5.11	Loam	0.27
TN121	0.0	B	1.30	5.21	Loam	0.33
TN126	19.0	C	1.30	5.12	Loam	0.33
TN127	3.0	C	1.31	5.20	Loam	0.35
TN128	0.0	C	1.30	6.53	Clayey Loam	0.26

Table 4-2. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201140. More details are provided in Watts Bar-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Loudon	31,255	38,245	18.3	5,733	7,015	22.4
Monroe	30,541	33,953	<0.1	10	11	10.0
Total	61,796	72,198		5,743	7,026	22.3

Table 4-3. Population Estimates in Subwatershed 06010201140.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Farragut	Knox	12,804	4,463	3,392	1,064	7
Lenoir City	Loudon	6,147	2,734	2,524	202	8
Loudon	Loudon	1,832	1,832	1,701	131	0
Total		20,783	9,029	7,617	1,397	15

Table 4-4. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 06010201140.

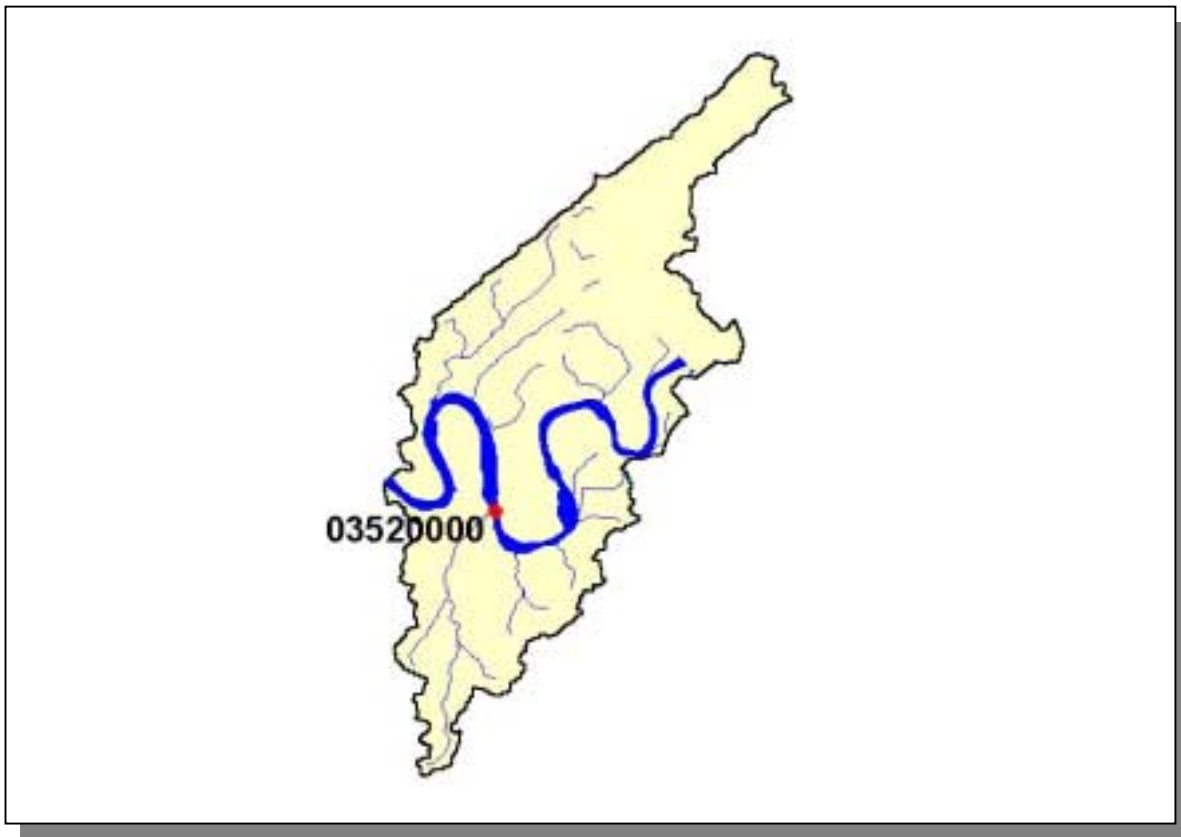


Figure 4-5. Location of Historical Streamflow Data Collection Sites in Subwatershed 06010201140. More information is provided in Watts Bar-Appendix IV.

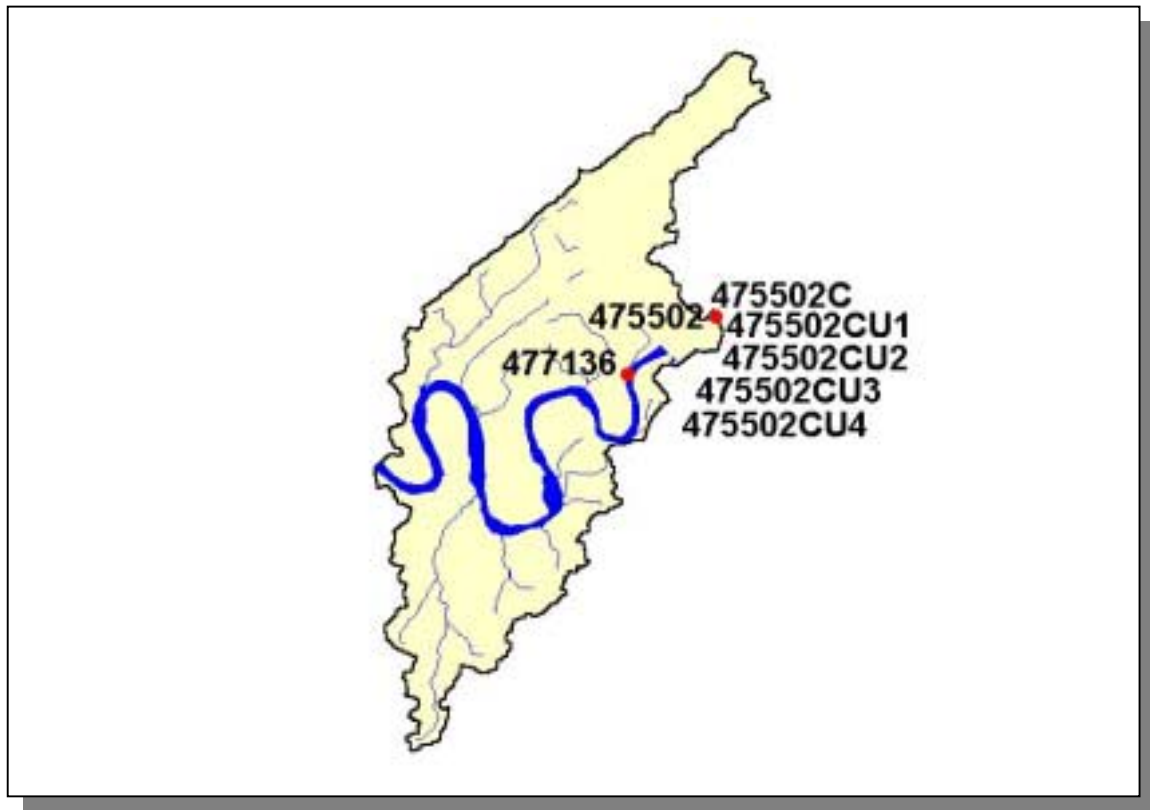


Figure 4-6. Location of STORET Monitoring Sites in Subwatershed 06010201140. More information is provided in Watts Bar-Appendix IV.

4.2.A.ii Point Source Contributions.

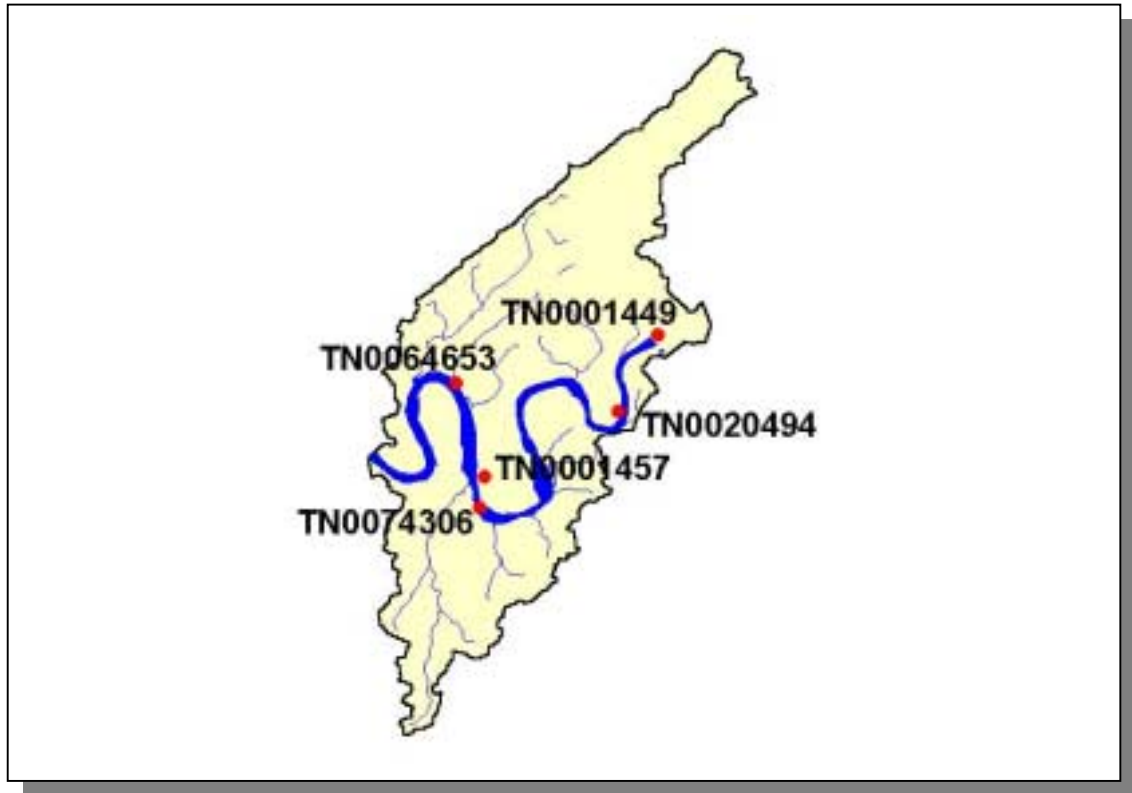


Figure 4-7. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 06010201140. More information, including the names of facilities, is provided in Watts Bar-Appendix IV.

4.2.A.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List

There are five NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 06010201140:

- TN0001449 discharges to
- TN0001457 discharges to
- TN0020494 discharges to
- TN0064653 discharges to
- TN0074306 discharges to

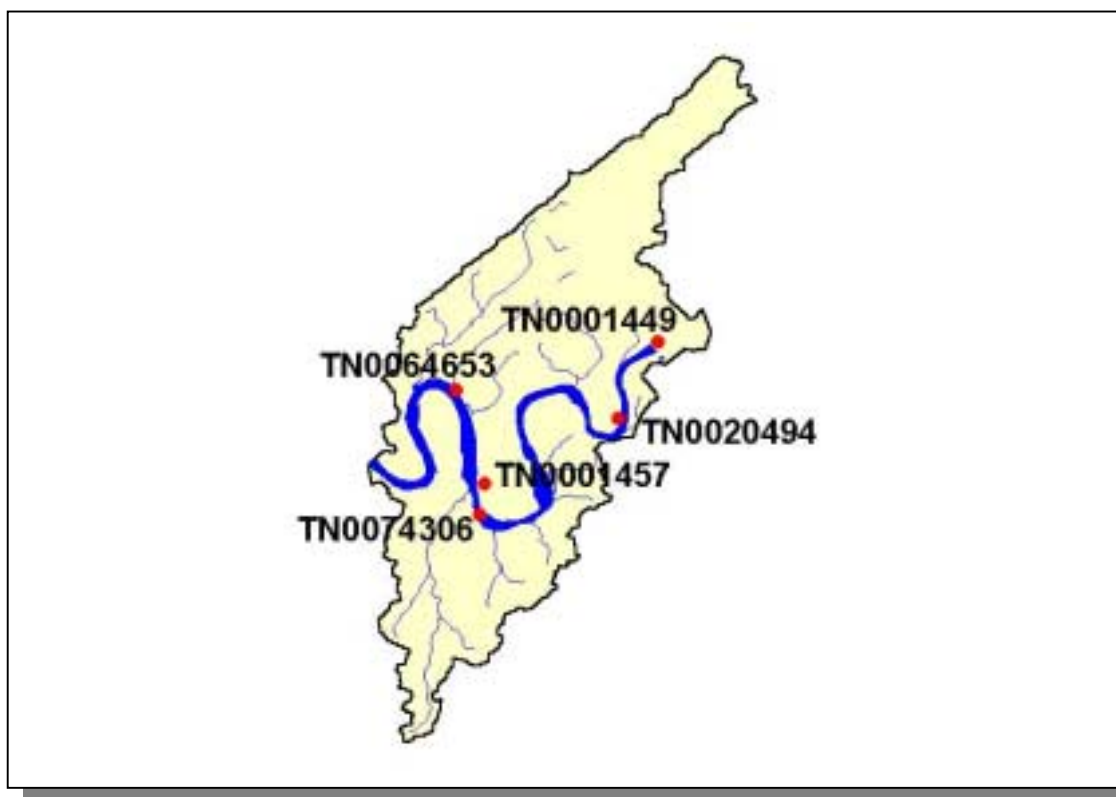


Figure 4-8. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 06010201140. The names of facilities are provided in Watts Bar-Appendix IV.

PERMIT #	7Q10	1Q20	30Q2	QDESIGN	QLTA
TN0001449		1,248	7,693		0.0667
TN0001457		1,248	7,693		1.682
TN0020494	6,790	1,930	11,900	2.0	6.935
TN0064653					
TN0074306					

Table 4-5. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201140. Data are in million gallons per day (MGD). 30Q2 data were obtained by using data in Flow Duration and Low Flows of Tennessee Streams Through 1992.

PERMIT #	CBOD ₅	NH ₃	FECAL	METAL
TN0001449				X
TN0001457	X			X
TN0020494	X		X	
TN0064653	X			

Table 4-6. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201140.

PERMIT #	Ag	Zn	Ni	Pb	TSS	SS	CD	Cr	Cu	SULFIDE	DO
TN0001449	X	X	X	X	X		X	X	X		
TN0001457					X	X				X	X

Table 4-7a. Inorganic Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201140.

PERMIT #	CN	TTO	TOTAL PHENOL	O&G
TN0001449	X	X		X
TN0001457			X	X

Table 4-7b. Organic Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201140.

TTO, Total Toxic Organics, O&G, oil and grease.

4.2.A.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Milk Cow	Cattle	Chickens	Hogs	Sheep
1,703	573	4,110	<5	14	45

Table 4-8. Summary of Livestock Count Estimates in Subwatershed 06010201140.

According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Loudon	62.3	62.3	1.1	3.5
Monroe	301.5	279.1	7.4	21.4
Total	363.8	341.4	8.5	24.9

Table 4-9. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 06010201140.

CROP	TONS/ACRE/YEAR
Corn (Row Crops)	3.18
Tobacco (Row Crops)	2.98
Grass (Hayland)	0.86
Legume (Hayland)	0.77
Legume Grass (Hayland)	0.93
Grass (Pastureland)	1.03
Grass, Forbs, Legumes (Mixed Pasture)	0.56
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.12
Wheat (Close Grown Cropland)	2.81
Non Agricultural Land Use	0.00
Soybeans (Row Crops)	12.82

Table 4-10. Annual Estimated Total Soil Loss in Subwatershed 06010201140.

4.2.B. 06010201150

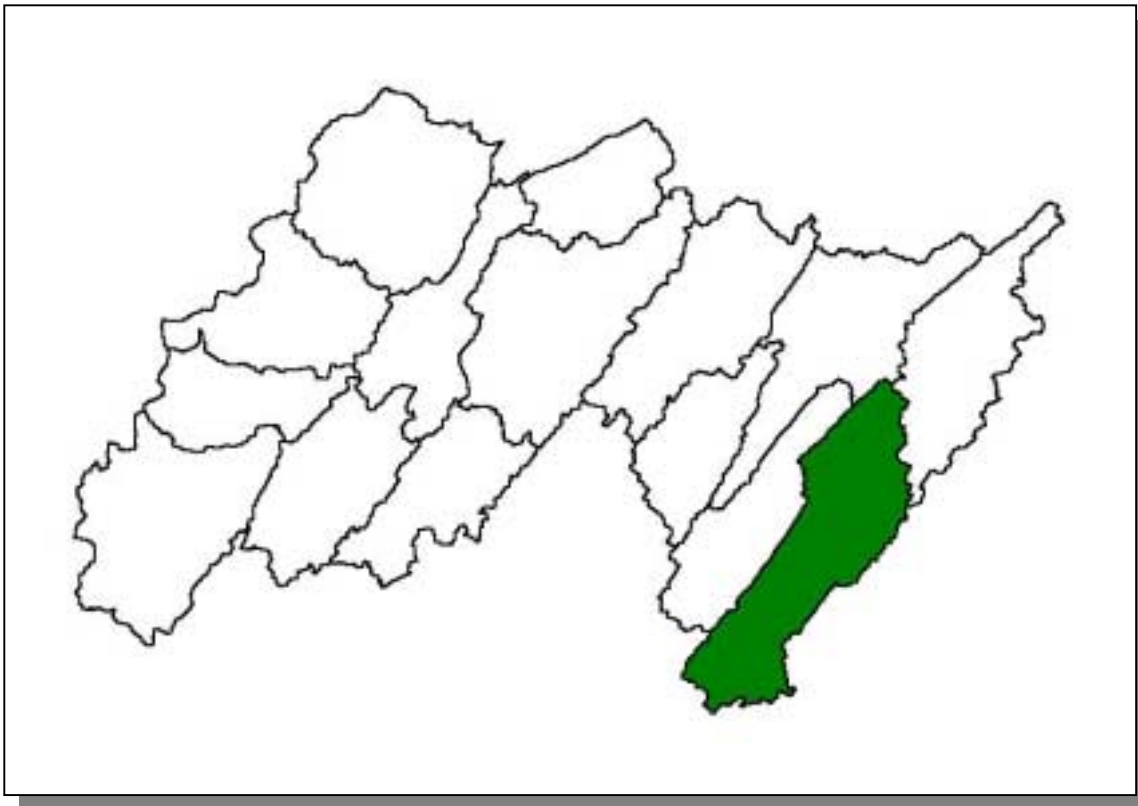


Figure 4-9. Location of Subwatershed 06010201150. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.B.i. General Description.

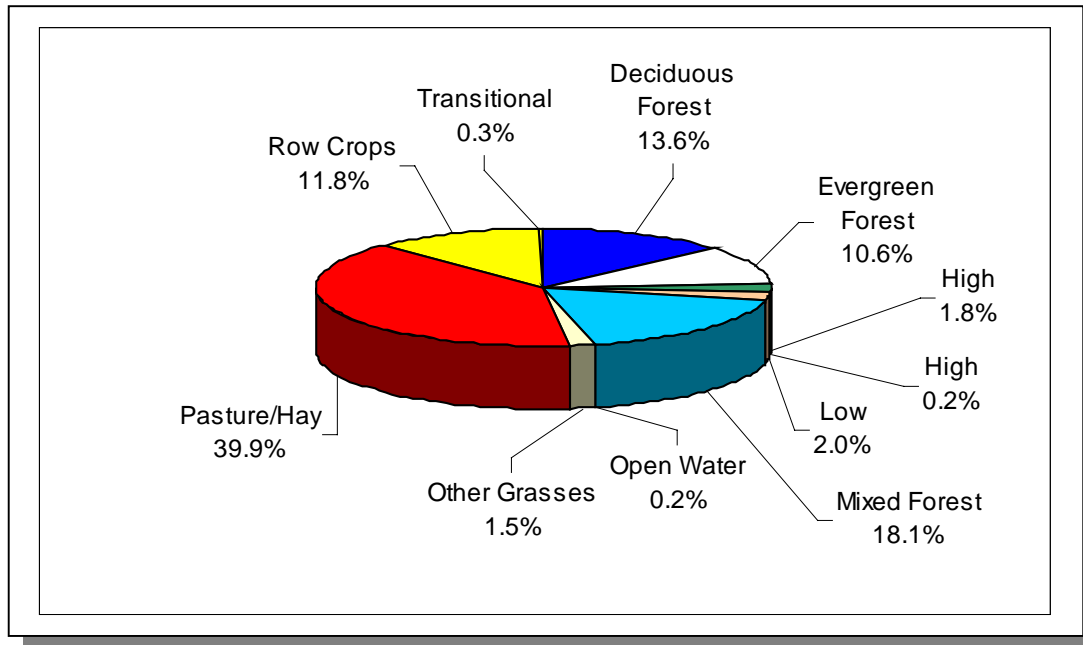


Figure 4-10. Land Use Distribution in Subwatershed 06010201150. More information is provided in Watts Bar-Appendix IV.

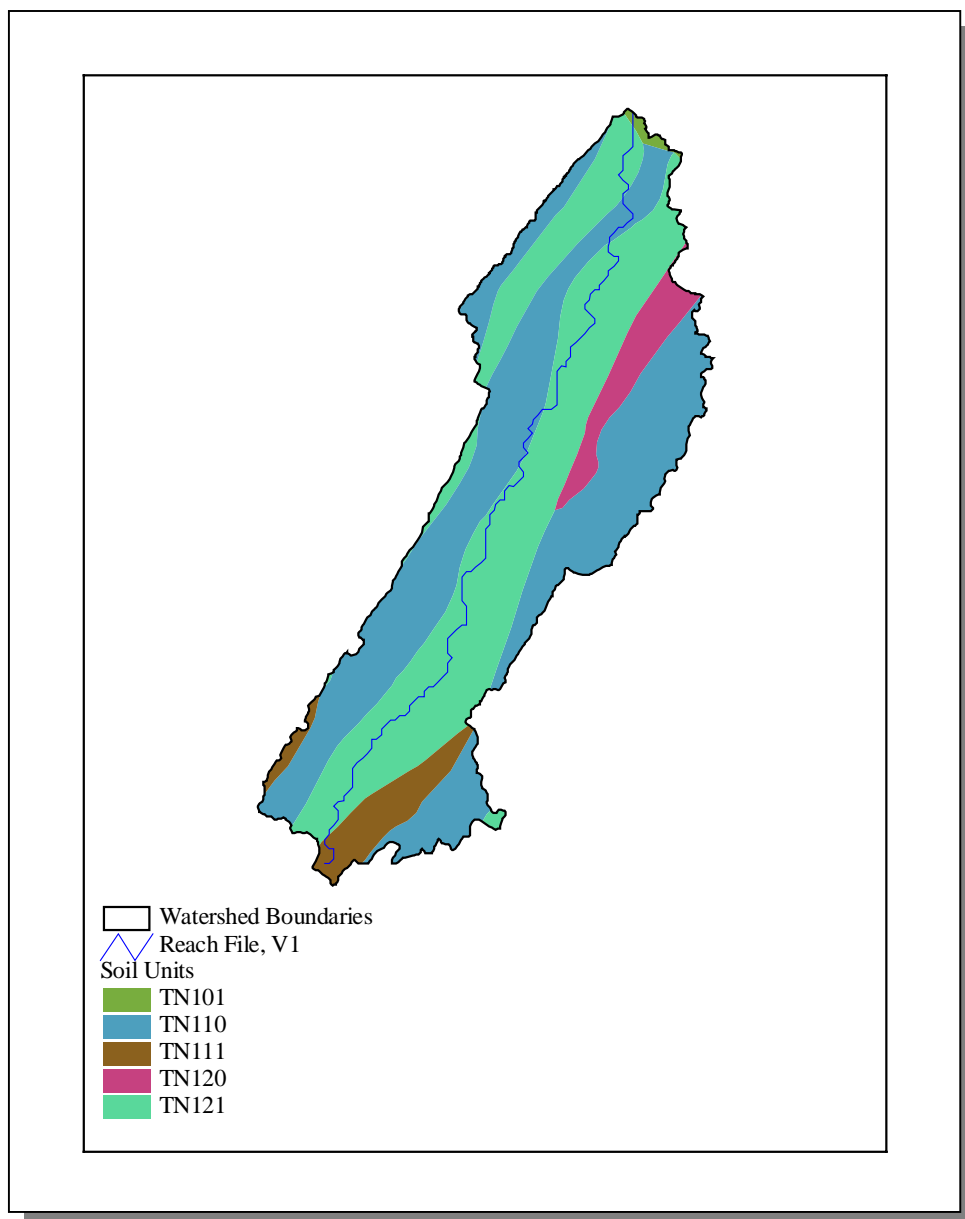


Figure 4-11. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201150.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN101	0.0	B	1.71	5.39	Loam	0.35
TN110	0.0	B	2.22	4.96	Loam	0.31
TN111	0.0	C	1.41	5.10	Loam	0.34
TN120	0.0	B	1.68	5.11	Loam	0.27
TN121	0.0	B	1.30	5.21	Loam	0.33

Table 4-11. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201150. More information is provided in Watts Bar-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Loudon	31,255	38,245	9.39	2,934	3,590	22.4
McMinn	42,383	46,000	2.31	978	1,061	8.5
Monroe	30,541	33,953	4.49	1,370	1,523	11.2
Totals	104,179	118,198		5,282	6,174	16.9

Table 4-12. Population Estimates in Subwatershed 06010201150.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Loudon	Loudon	4,026	1,832	1,701	131	0
Philadelphia	Loudon	474	203	12	189	2
Sweetwater	Monroe	5,054	2,164	1,598	560	6
Total		9,554	4199	3,311	880	8

Table 4-13. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 06010201150.



Figure 4-12. Location of Historical Streamflow Data Collection Sites in Subwatershed 06010201150. More information is provided in Watts Bar-Appendix IV.

4.2.B.ii. Point Source Contributions.



Figure 4-13. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 06010201150. More information, including the names of facilities, is provided in Watts Bar-Appendix IV.

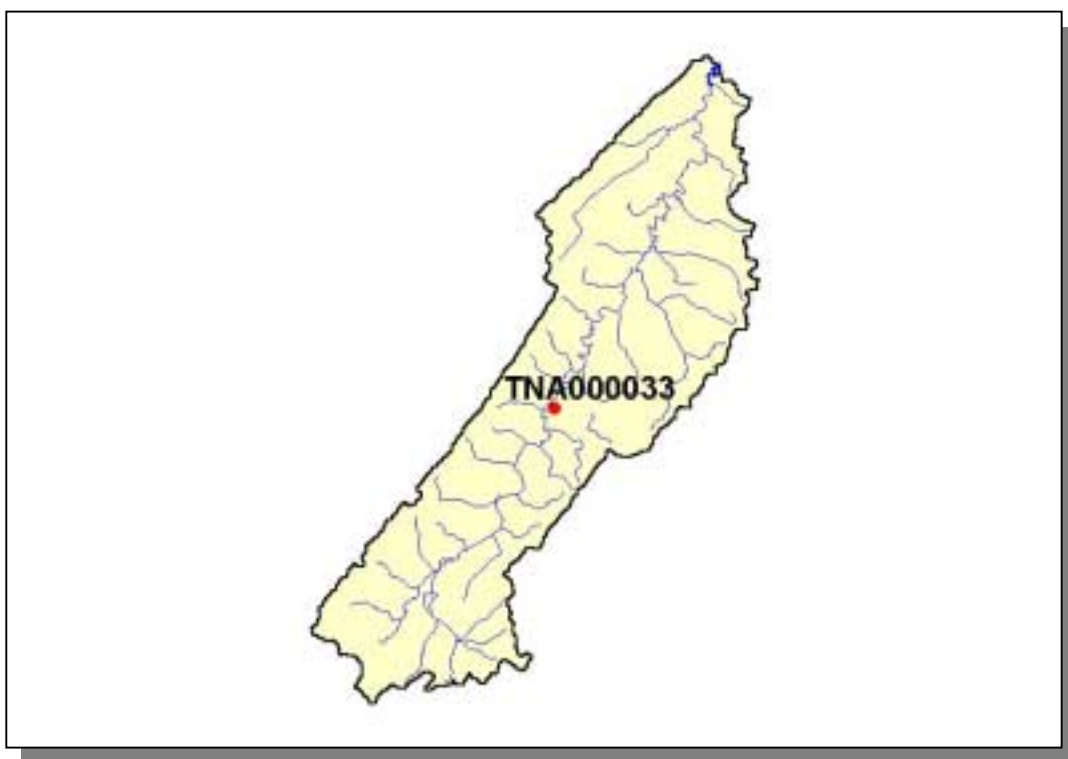


Figure 4-14. Location of Concentrated Animal Feeding Operation (CAFO) Sites in Subwatershed 06010201150. More information is provided in Watts Bar-Appendix IV.

4.2.A.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List

There are two NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 06010201150:

- TN0060143 discharges to
- TN0073806 discharges to



Figure 4-15. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 06010201150. The names of facilities are provided in Watts Bar-Appendix IV.

PERMIT #	7Q10	1Q20	30Q2	QDESIGN	QLTA
TN0060143					0.15
TN0073806					0.0002

Table 4-14. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201150. Data are in million gallons per day (MGD). 30Q2 data were obtained by using data in Flow Duration and Low Flows of Tennessee Streams Through 1992.

PERMIT #	CBOD ₅	WET	METAL
TN0060143	X		X
TN0073806		X	X

Table 4-15. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201150.

PERMIT #	BENZENE	ETHYLBENZENE	XYLENE	TOLUENE	Pb
TN0060143					X
TN0073806	X	X	X	X	

Table 4-16. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201150.

4.2.B.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
4,807	12,189	1,898	12	448,853	83	59

Table 4-17. Summary of Livestock Count Estimates in Subwatershed 06010201150. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Loudon	62.3	62.3	1.1	3.5
Monroe	301.5	279.1	7.4	21.4
Total	363.8	341.4	8.5	24.9

Table 4-18. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 06010201150.

CROP	TONS/ACRE/YEAR
Corn (Row Crops)	10.97
Tobacco (Row Crops)	3.77
Grass (Hayland)	0.56
Legume (Hayland)	0.77
Legume Grass (Hayland)	0.75
Grass (Pastureland)	0.71
Grass, Forbs, Legumes (Mixed Pasture)	0.51
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.34
Wheat (Close Grown Cropland)	4.69
Non Agricultural Land Use	0.00
Soybeans (Row Crops)	12.82

Table 4-19. Annual Estimated Total Soil Loss in Subwatershed 06010201150.

4.2.C. 06010201160.

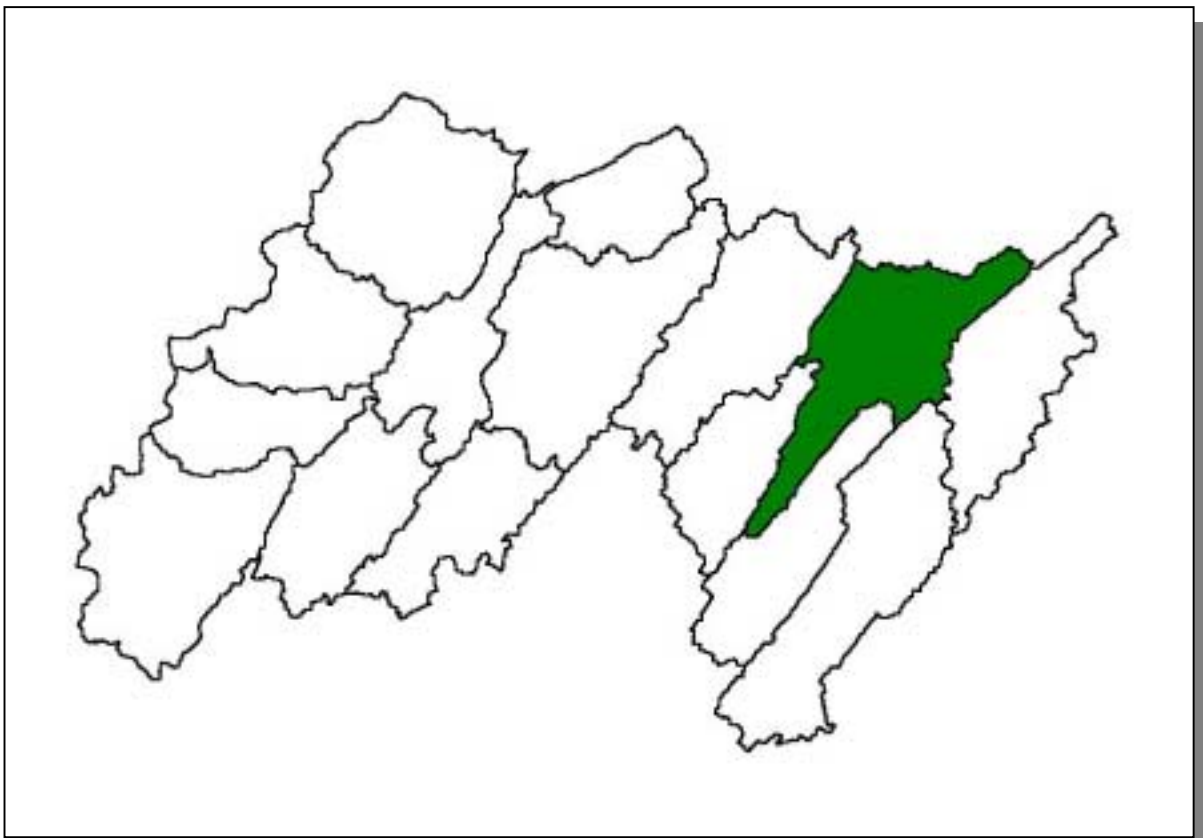


Figure 4-16. Location of Subwatershed 06010201160. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

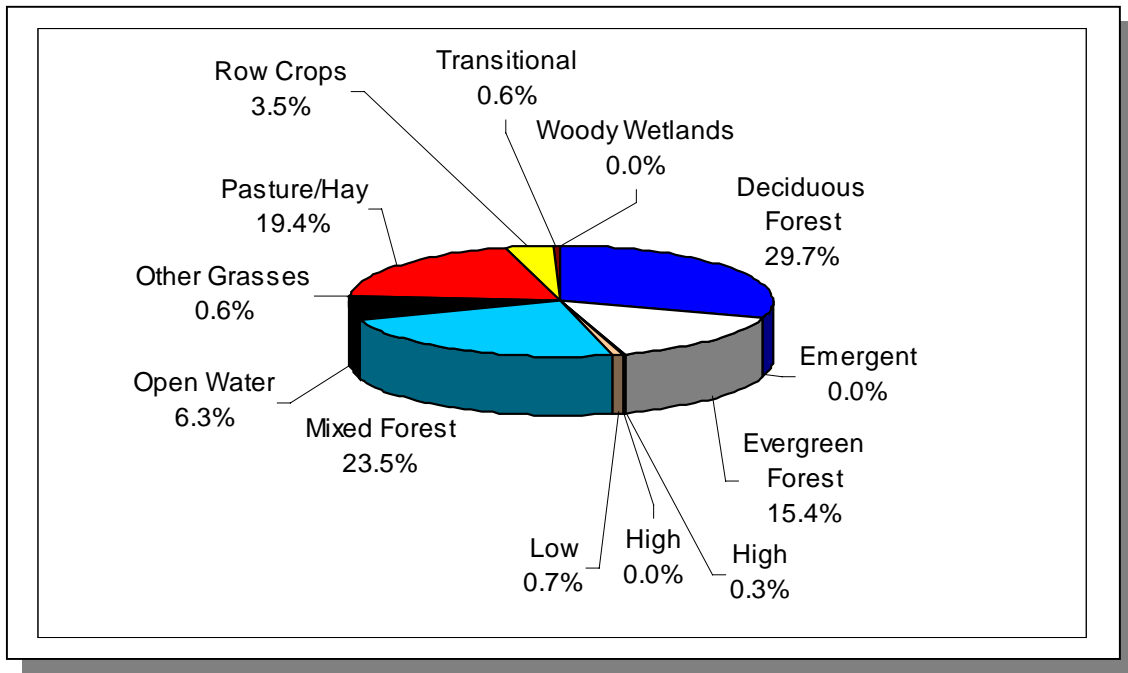


Figure 4-17. Land Use Distribution in Subwatershed 06010201160. More information is provided in Watts Bar-Appendix IV.

4.2.C.i. General Description.

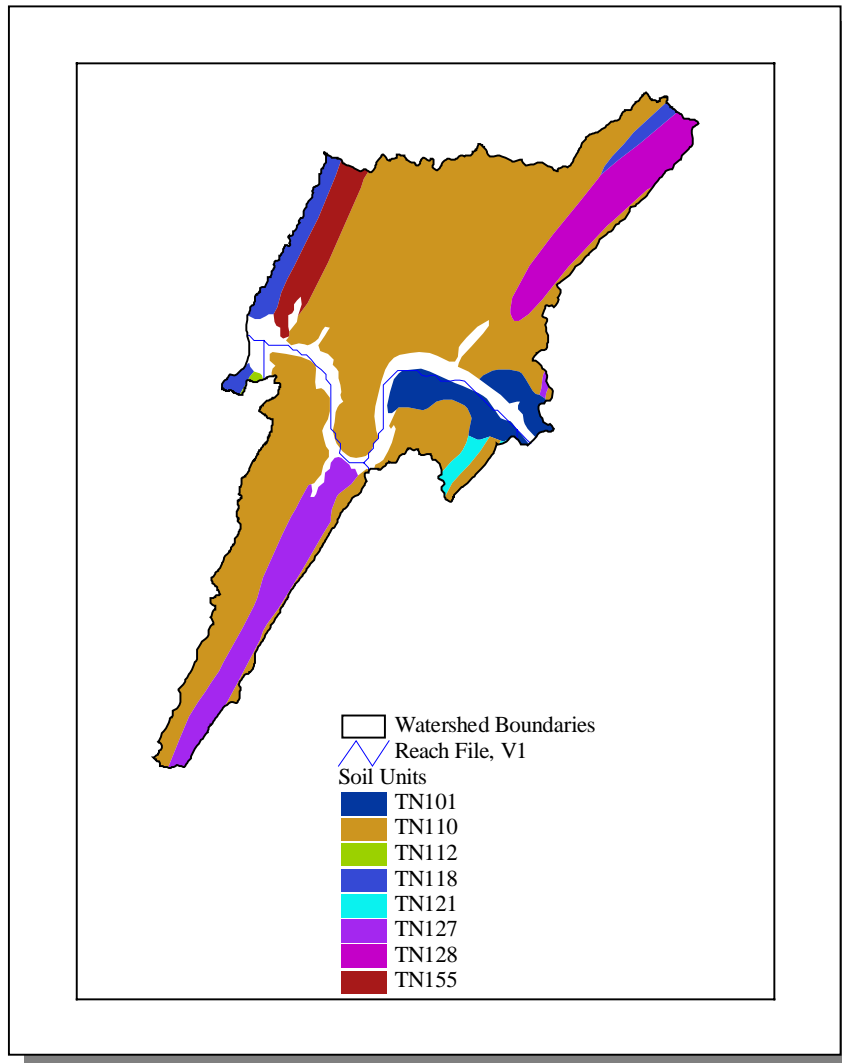


Figure 4-18. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201160.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN101	0.0	B	1.71	5.39	Loam	0.35
TN110	0.0	B	2.22	4.96	Loam	0.31
TN112	2.0	C	2.36	5.09	Loam	0.35
TN118	0.0	C	6.52	5.12	Loam	0.29
TN121	0.0	B	1.30	5.21	Loam	0.33
TN127	3.0	C	1.31	5.20	Loam	0.35
TN128	0.0	C	1.30	6.53	Clayey Loam	0.26
TN155	0.0	C	1.71	5.31	Loam	0.32

Table 4-20. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201160. More information is provided in Watts Bar-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Loudon	31,255	38,245	10.9	3,397	4,156	22.3
Roane	47,227	49,885	6.7	3,141	3,317	5.6
Total	78,482	88,130		6,538	7,473	14.3

Table 4-21. Population Estimates in Subwatershed 06010201160.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Loudon	Loudon	4,026	1,832	1,701	131	0

Table 4-22. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 06010201160.

4.2.C.ii. Point Source Contributions.

No Contributions.

4.2.C.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
1,661	3,784	437	5	20	42

Table 4-23. Summary of Livestock Count Estimates in Subwatershed 06010201160.
According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bledsoe	62.3	62.3	1.1	3.5
Roane	153.1	153.1	1.7	5.1
Total	215.4	215.4	2.8	8.6

Table 4-24. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 06010201160.

CROPS	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Legume Grass (Hayland)	0.60
Grass (Pastureland)	1.70
Legume (Pastureland)	0.23
Grass, Forbs, Legumes (Mixed Pasture)	0.52
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.84
Corn (Row Crops)	3.12
Tobacco (Row Crops)	2.98
Grass (Hayland)	0.86
Legume (Hayland)	0.77
Forest Land (Grazed)	0.00
Wheat (Close Grown Cropland)	2.79

Table 4-25. Annual Estimated Total Soil Loss in Subwatershed 06010201160.

4.2.D. 06010201170.

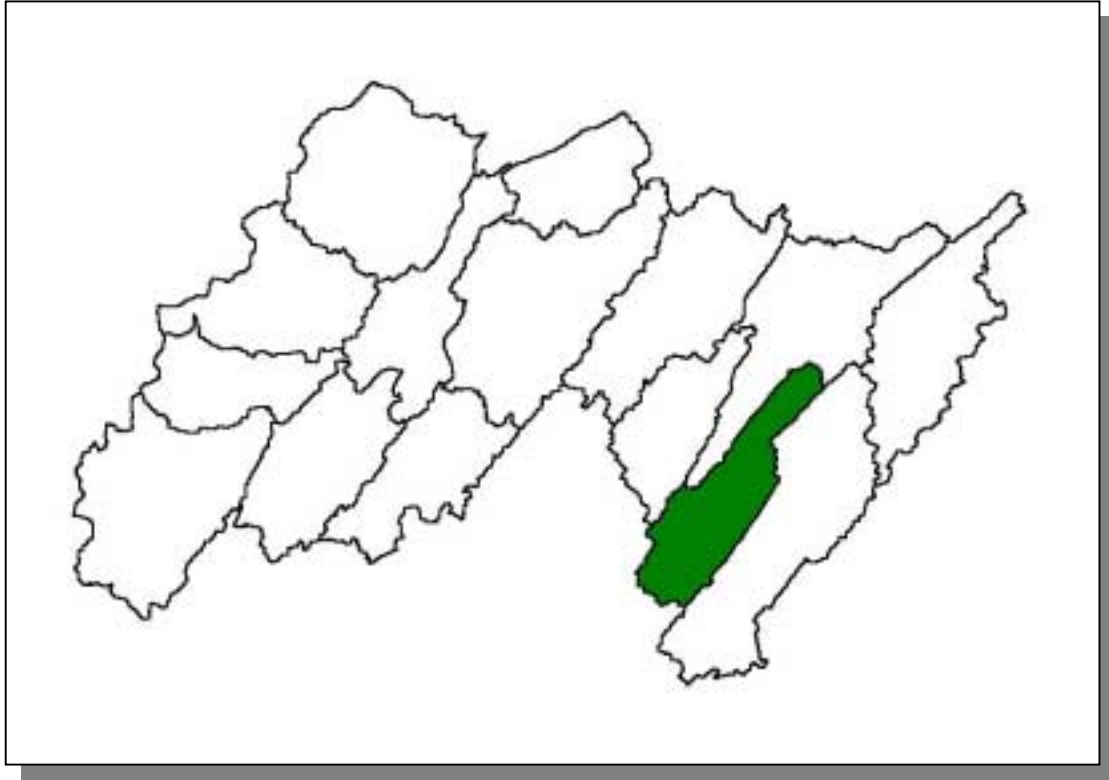


Figure 4-19. Location of Subwatershed 06010201170. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.D.i. General Description.

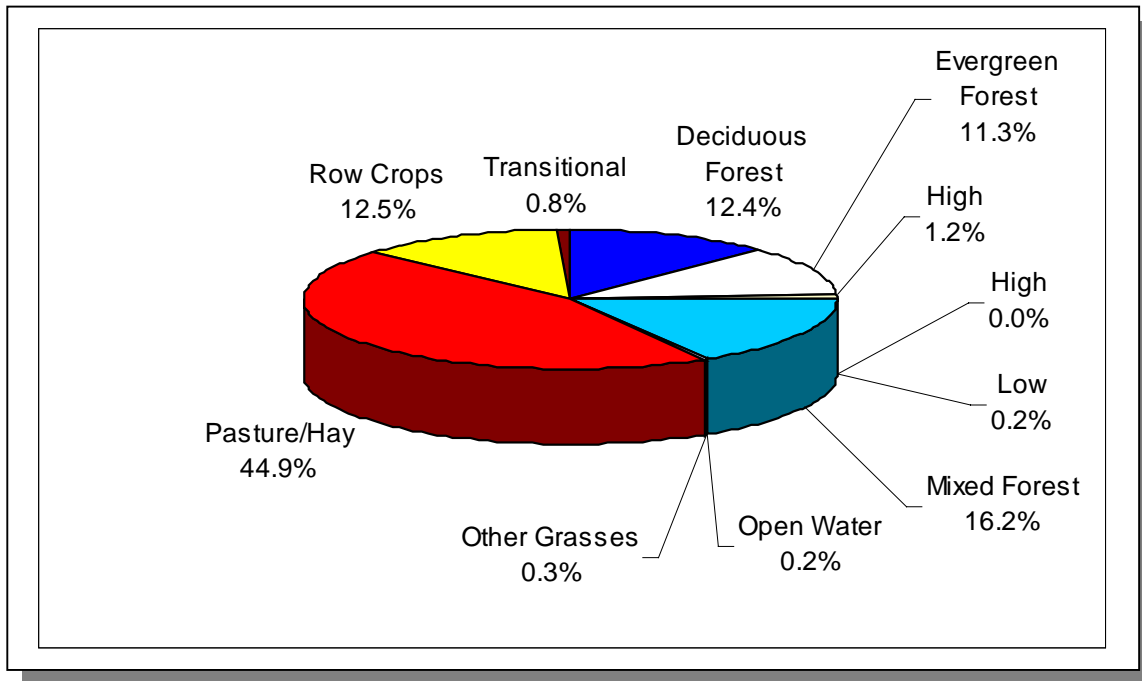


Figure 4-20. Land Use Distribution in Subwatershed 06010201170. More information is provided in Watts Bar-Appendix IV.

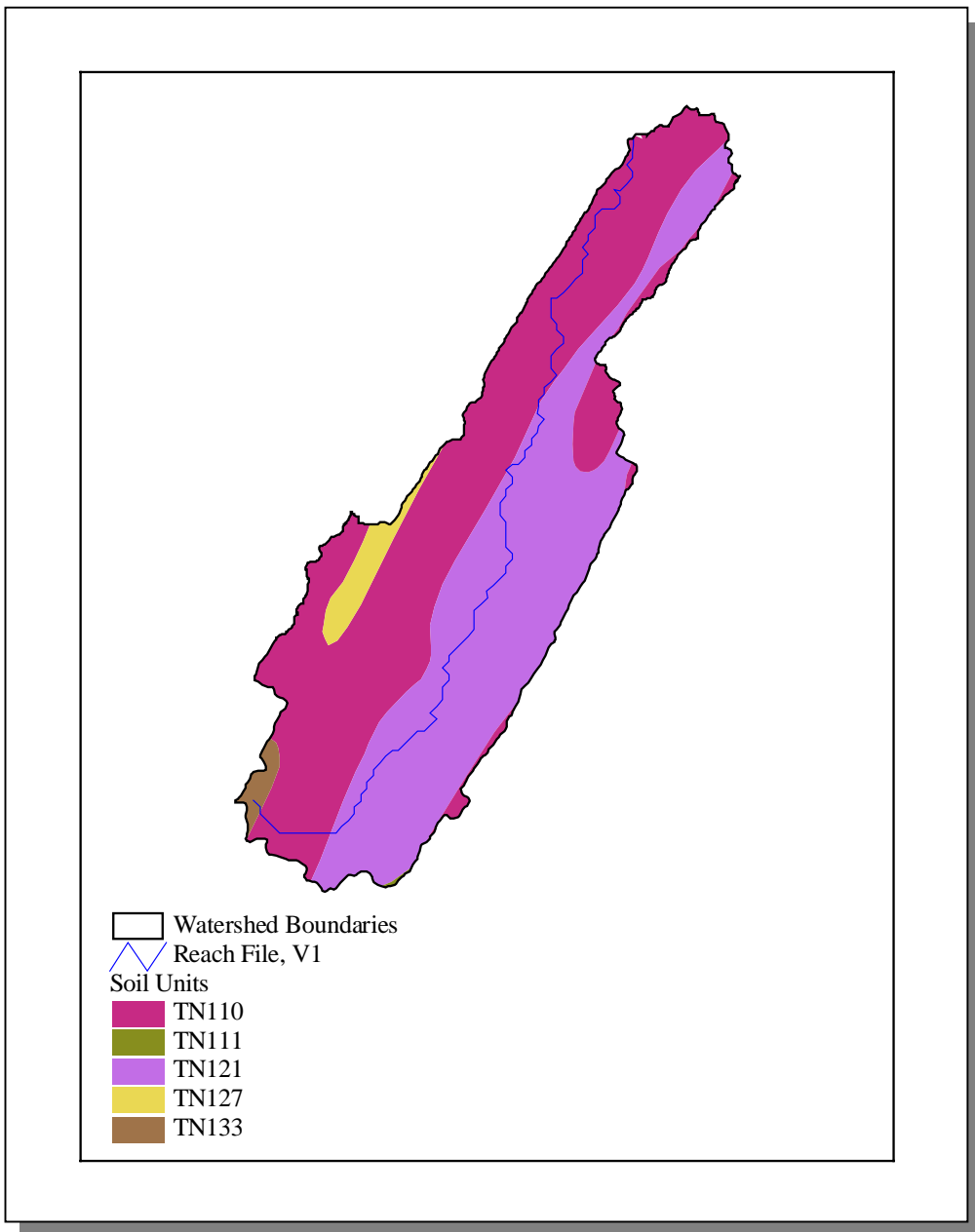


Figure 4-21. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201170.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN110	0.0	B	2.22	4.96	Loam	0.31
TN111	0.0	C	1.41	5.10	Loam	0.34
TN121	0.0	B	1.30	5.21	Loam	0.33
TN127	3.0	C	1.31	5.20	Loam	0.35
TN133	0.0	C	1.35	6.04	Clayey Loam	0.27

Table 4-26. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201170. More information is provided in Watts Bar-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Loudon	31,255	38,245	7.44	2,326	2,846	22.4
McMinn	42,383	46,000	1.73	735	798	8.6
Monroe	30,541	33,953	1.6	488	543	11.3
Total	104,179	118,198		3,549	4,187	18.0

Table 4-27. Population Estimates in Subwatershed 06010201170.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Loudon	Loudon	4,026	1,832	1,701	131	0
Sweetwater	Monroe	5,054	2,164	1,598	560	6
Total		9,080	3,996	3,299	691	6

Table 4-28. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 06010201170.



Figure 4-22. Location of Historical Streamflow Data Collection Sites in Subwatershed 06010201170. More information is provided in Watts Bar-Appendix IV.

4.2.D.ii. Point Source Contributions.



Figure 4-23. Location of Concentrated Animal Feeding Operation (CAFO) Sites in Subwatershed 06010201170. More information is provided in Watts Bar-Appendix IV.

4.2.D.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
3,267	8,255	1,274	8	55	44

Table 4-29. Summary of Livestock Count Estimates in Subwatershed 06010201170. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Loudon	62.3	62.3	1.1	3.5
Monroe	301.5	279.1	7.4	21.4
Total	363.8	341.4	8.5	24.9

Table 4-30. Forest Acreage and Average Annual removal rates (1987-1994) in Subwatershed 06010201170.

CROP	TONS/ACRE/YEAR
Corn (Row Crops)	8.21
Tobacco (Row Crops)	3.74
Grass (Hayland)	0.62
Legume (Hayland)	0.77
Legume Grass (Hayland)	0.81
Grass (Pastureland)	0.76
Grass, Forbs, Legumes (Mixed Pasture)	0.54
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.36
Wheat (Close Grown Cropland)	4.03
Non Agricultural Land Use	0.00
Soybeans (Row Crops)	12.82

Table 4-31. Annual Soil Loss in Subwatershed 06010201170.

4.2.E. 06010201180.

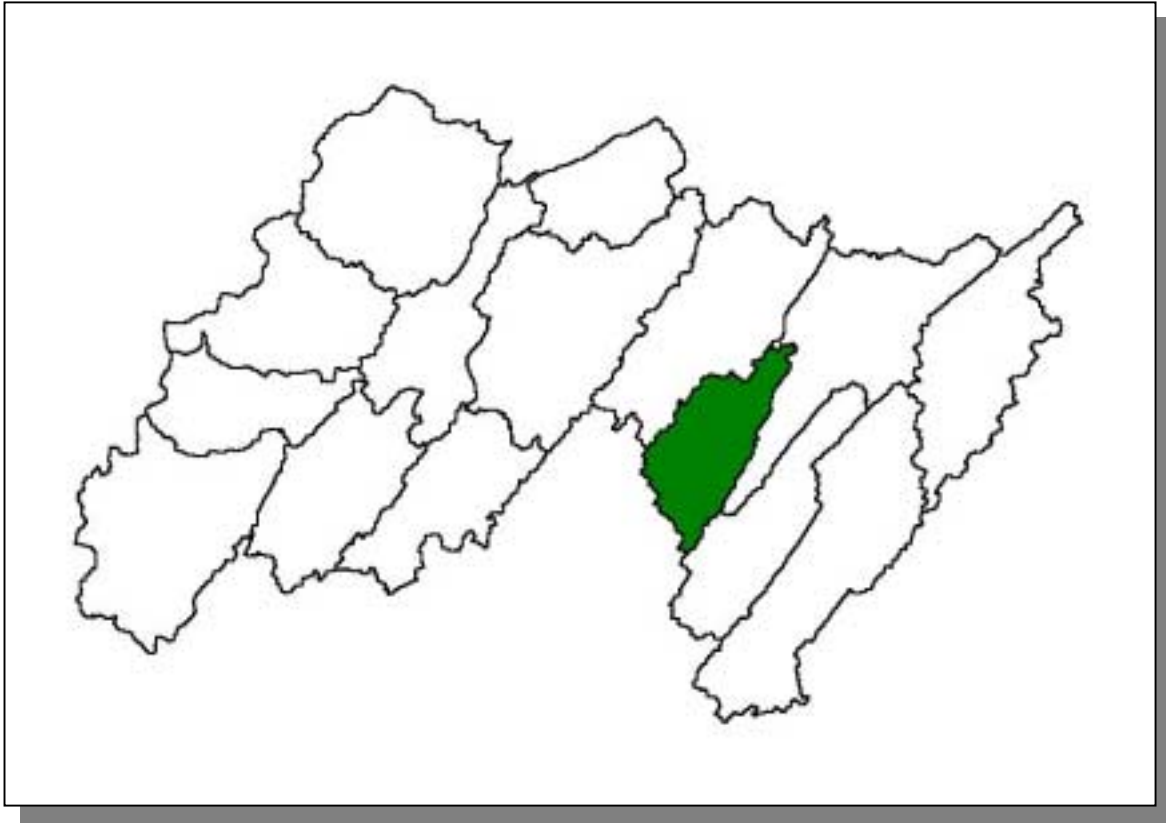


Figure 4-24. Location of Subwatershed 06010201180. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.E.i. General Description.

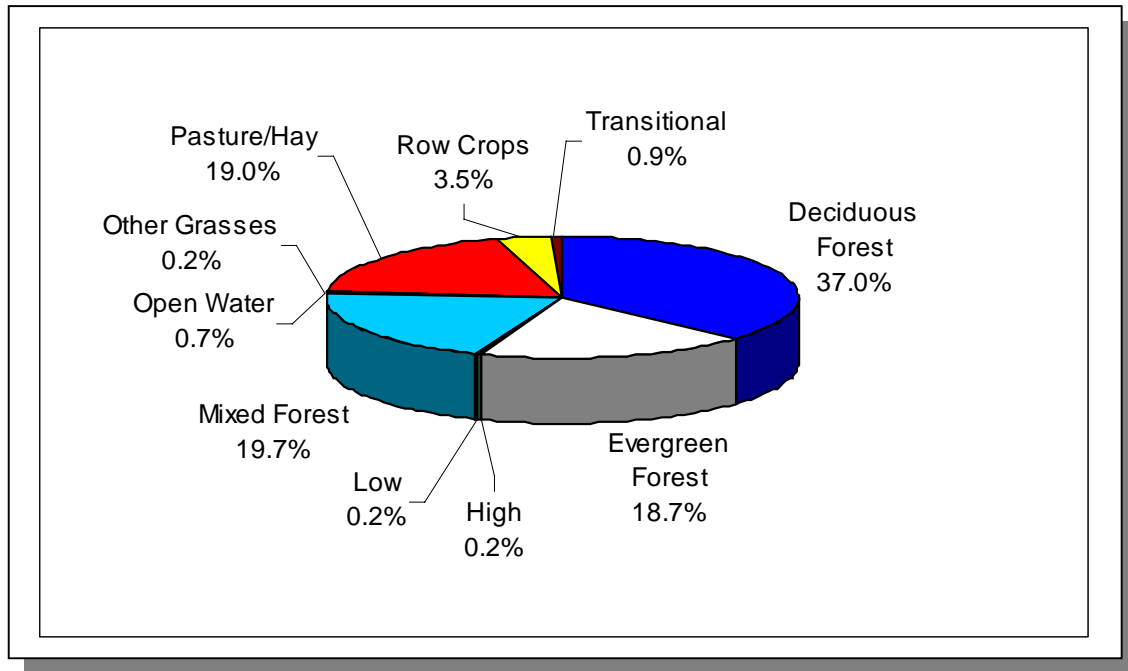


Figure 4-25. Land Use Distribution in Subwatershed 06010201180. More information is provided in Watts Bar-Appendix IV.

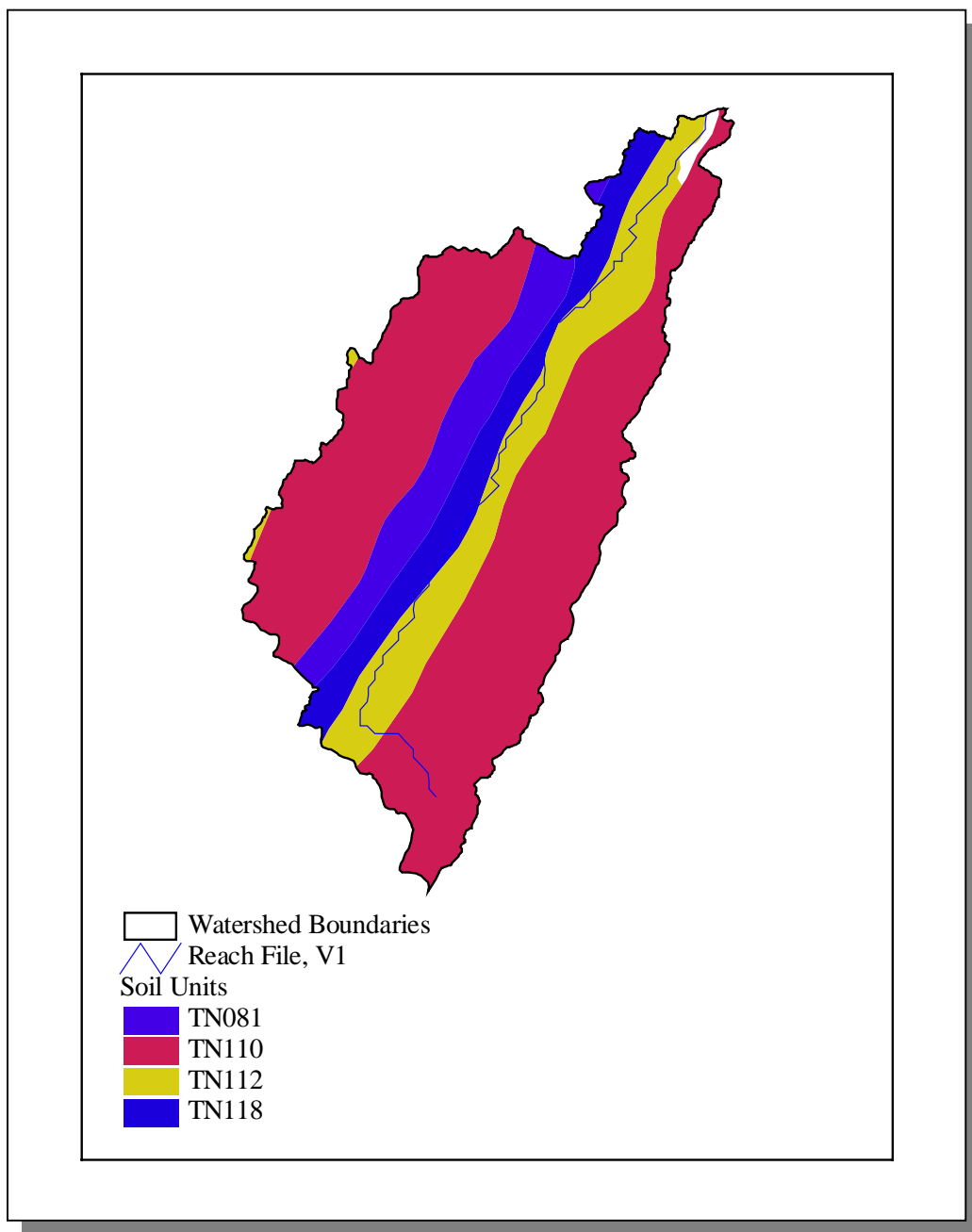


Figure 4-26. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201180.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATE SOIL TEXTURE	SOIL ERODIBILITY
TN081	2.0	C	1.41	5.48	Silty Loam	0.35
TN110	0.0	B	2.22	4.96	Loam	0.31
TN112	2.0	C	2.36	5.09	Loam	0.35
TN118	0.0	C	6.52	5.12	Loam	0.29

Table 4-32. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201180. More information is provided in Watts Bar-Appendix IV.

	County Population			Estimated Population in Watershed		% Change
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Loudon	31,255	38,245	2.43	759	929	22.4
McMinn	42,383	46,000	0.03	11	12	9.1
Roane	47,227	49,885	6.11	2,884	3,047	5.7
Totals	120,865	134,130		3,654	3,988	9.1

Table 4-33. Population Estimates in Subwatershed 06010201180.

4.2.E.ii. Point Source Contributions.

No Contributions.

4.2.E.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
898	1,861	135	<5	4,111	16	21

Table 4-34. Summary of Livestock Count Estimates in Subwatershed 06010201180. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Loudon	62.3	62.3	1.1	3.5
Roane	153.1	153.1	1.7	5.1
Total	215.4	215.4	2.8	8.6

Table 4-35. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 06010201180.

CROP	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Legume Grass (Hayland)	0.40
Grass (Pastureland)	2.12
Legume (Pastureland)	0.23
Grass, Forbs, Legumes (Mixed Pasture)	0.49
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	1.29
Corn (Row Crops)	3.12
Tobacco (Row Crops)	3.02
Grass (Hayland)	0.85
Legume (Hayland)	0.77
Forest Land (Grazed)	0.00
Wheat (Close Grown Cropland)	2.79

Table 4-36. Annual Estimated Soil Loss in Subwatershed 06010201180.

4.2.F. 06010201190.

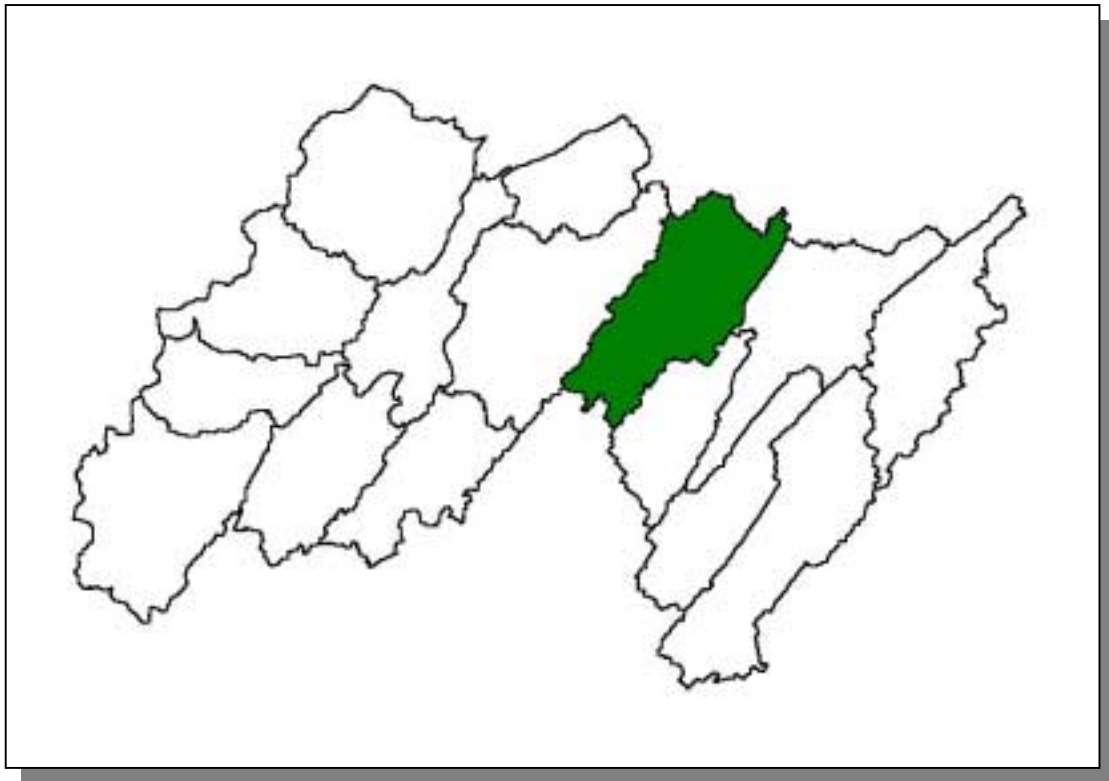


Figure 4-27. Location of Subwatershed 06010201190. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.F.i. General Description.

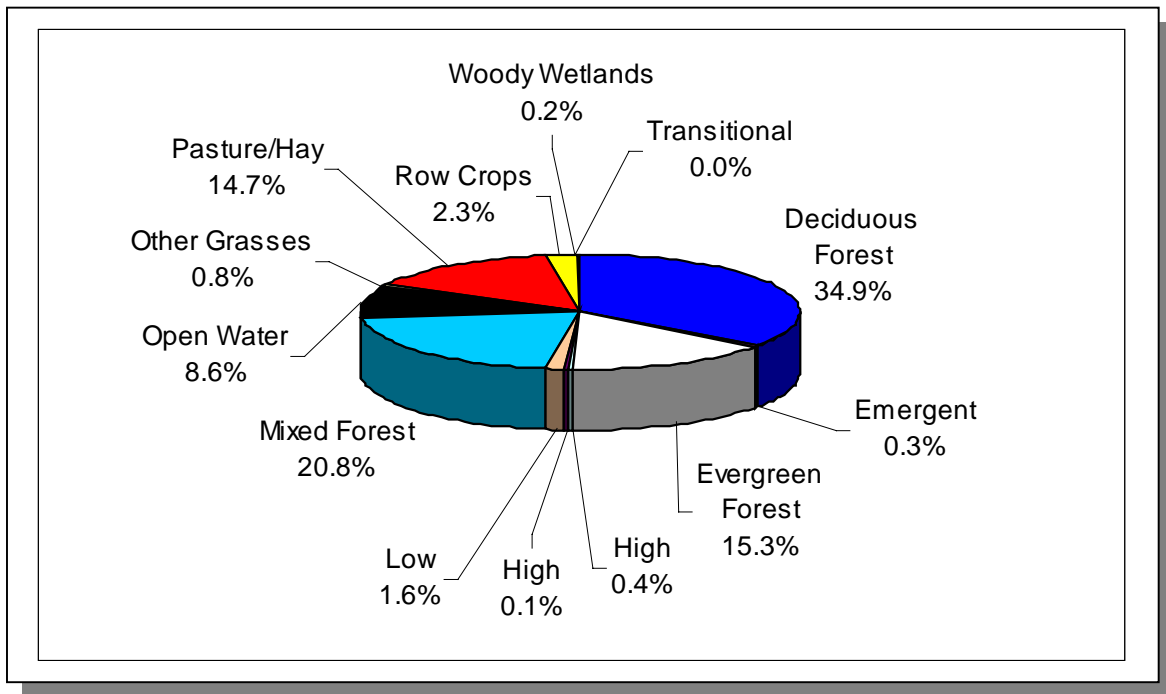


Figure 4-28. Land Use Distribution in Subwatershed 06010201190. More information is provided in Watts Bar-Appendix IV.

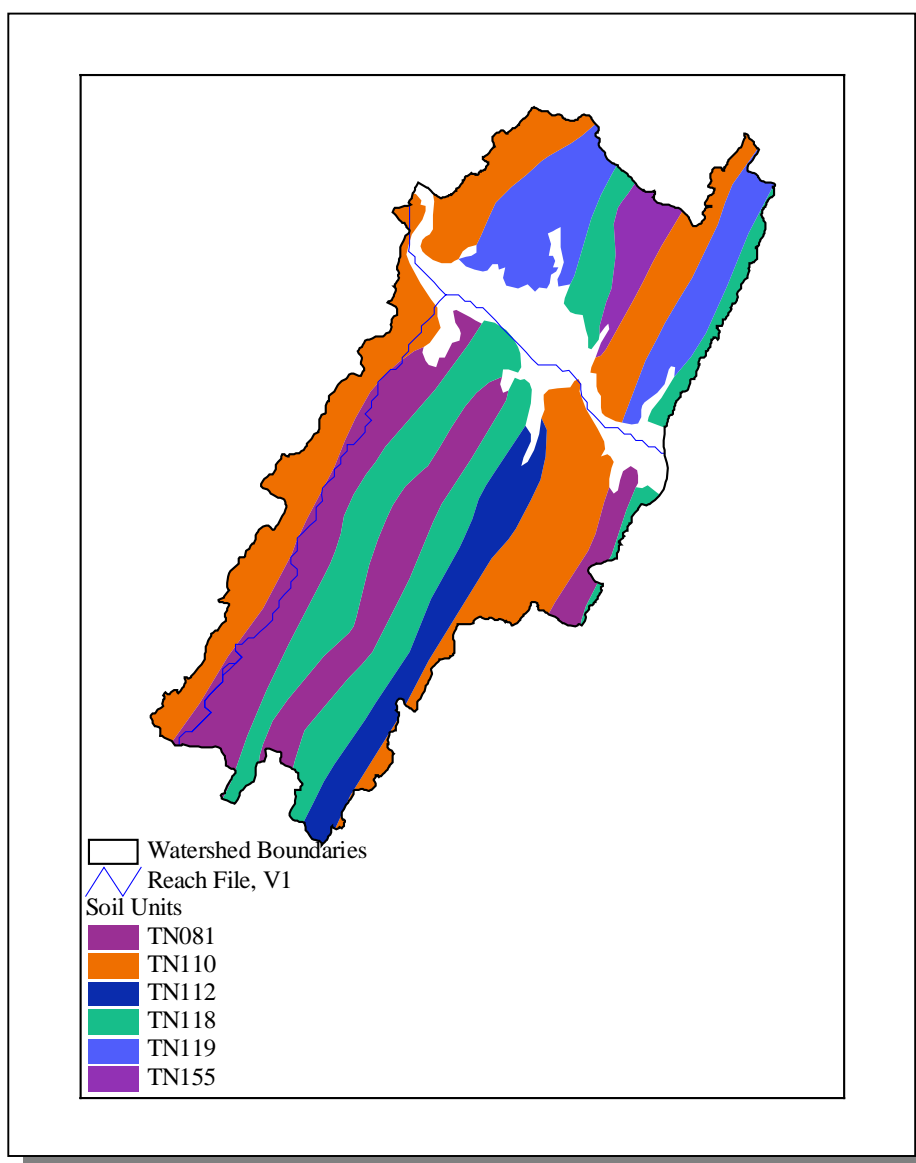


Figure 4-29. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201190.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATE SOIL TEXTURE	SOIL ERODIBILITY
TN081	2.0	C	1.41	5.48	Sandy Loam	0.35
TN110	0.0	B	2.22	4.96	Loam	0.31
TN112	2.0	C	2.36	5.09	Loam	0.35
TN118	0.0	C	6.52	5.12	Loam	0.29
TN119	0.0	C	1.08	5.15	Loam	0.33
TN155	0.0	C	1.71	5.31	Loam	0.32

Table 4-37. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201190. More information is provided in Watts Bar-Appendix IV.

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Kingston	Roane	4,552	2,071	1,587	484	0

Table 4-38. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 06010201170.

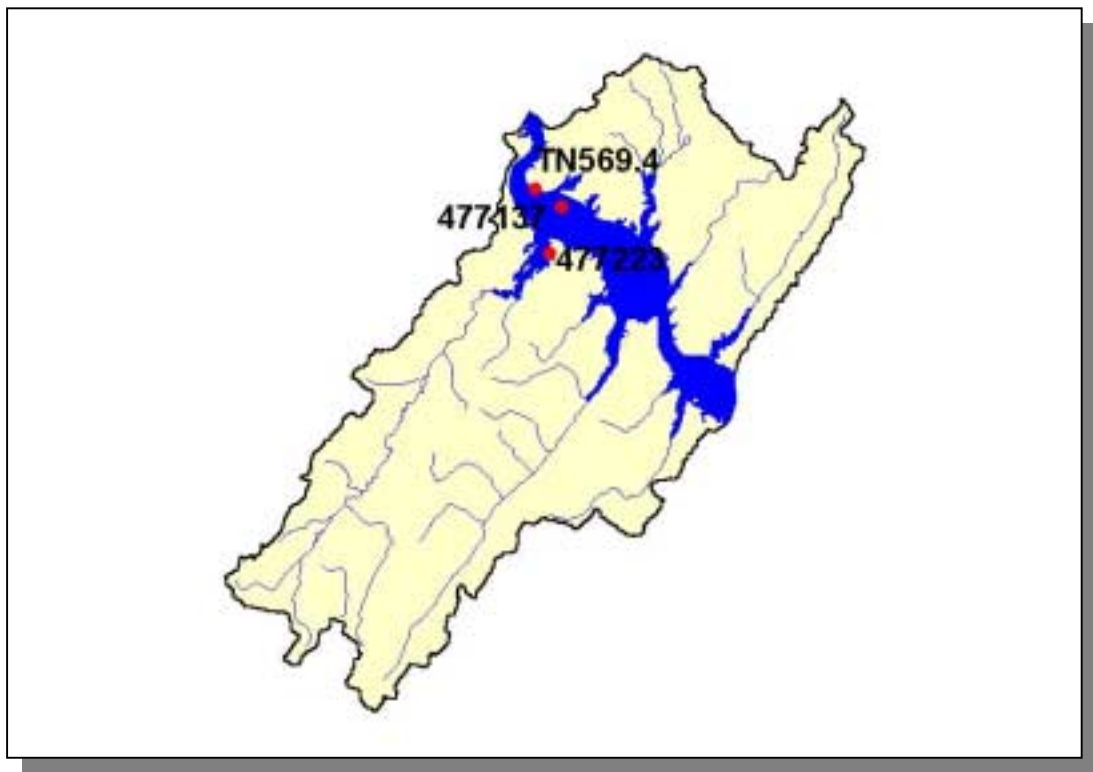


Figure 4-30. Location of STORET Monitoring Sites in Subwatershed 06010208060. More information is provided in Watts Bar-Appendix IV.

4.2.F.ii. Point Source Contributions.

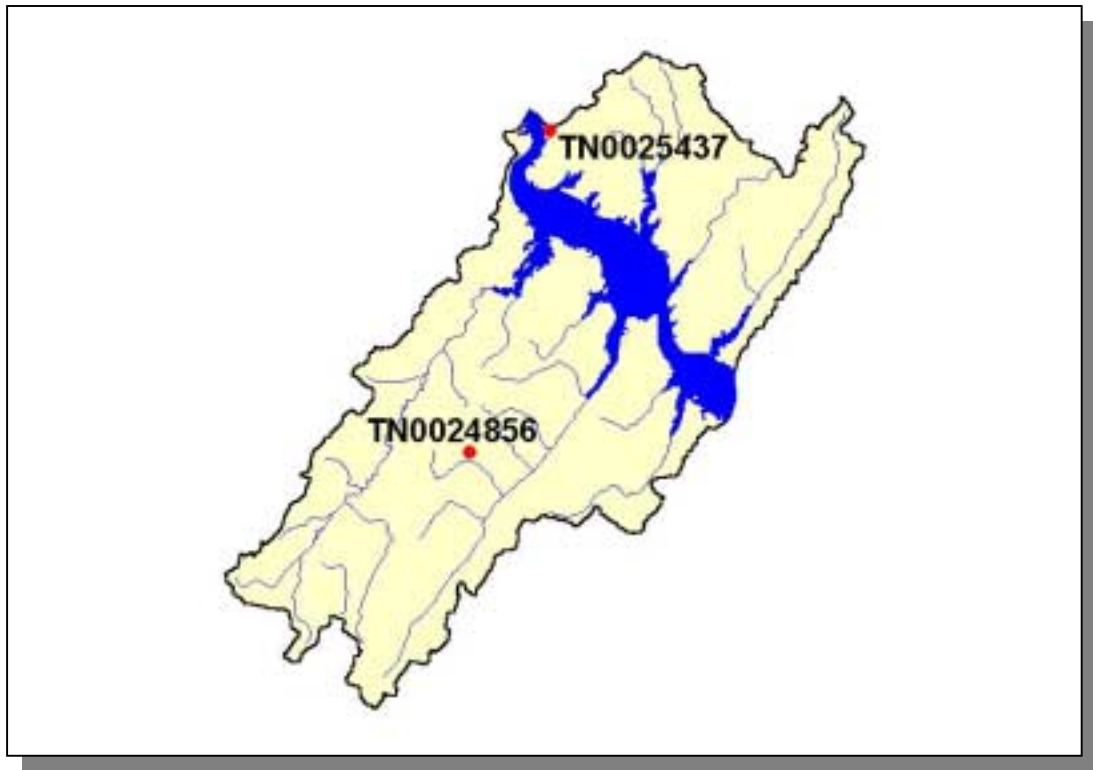


Figure 4-31. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 06010201190. More information, including the names of facilities, is provided in Watts Bar-Appendix IV.

4.2.F.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Chickens	Hogs	Milk Cow	Sheep
1,231	2,379	<5	27	93	28

Table 4-39. Summary of Livestock Count Estimates in Subwatershed 06010201190.
According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	Inventory		Removal Rate	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Roane	153.1	153.1	1.7	5.1

Table 4-40. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 06010201190.

CROP	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Legume Grass (Hayland)	0.26
Grass (Pastureland)	2.40
Legume (Pastureland)	0.23
Grass, Forbs, Legumes (Mixed Pasture)	0.47
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	1.59

Table 4-41. Annual Estimated Total Soil Loss in Subwatershed 06010201190.

4.2.G. 06010201200.

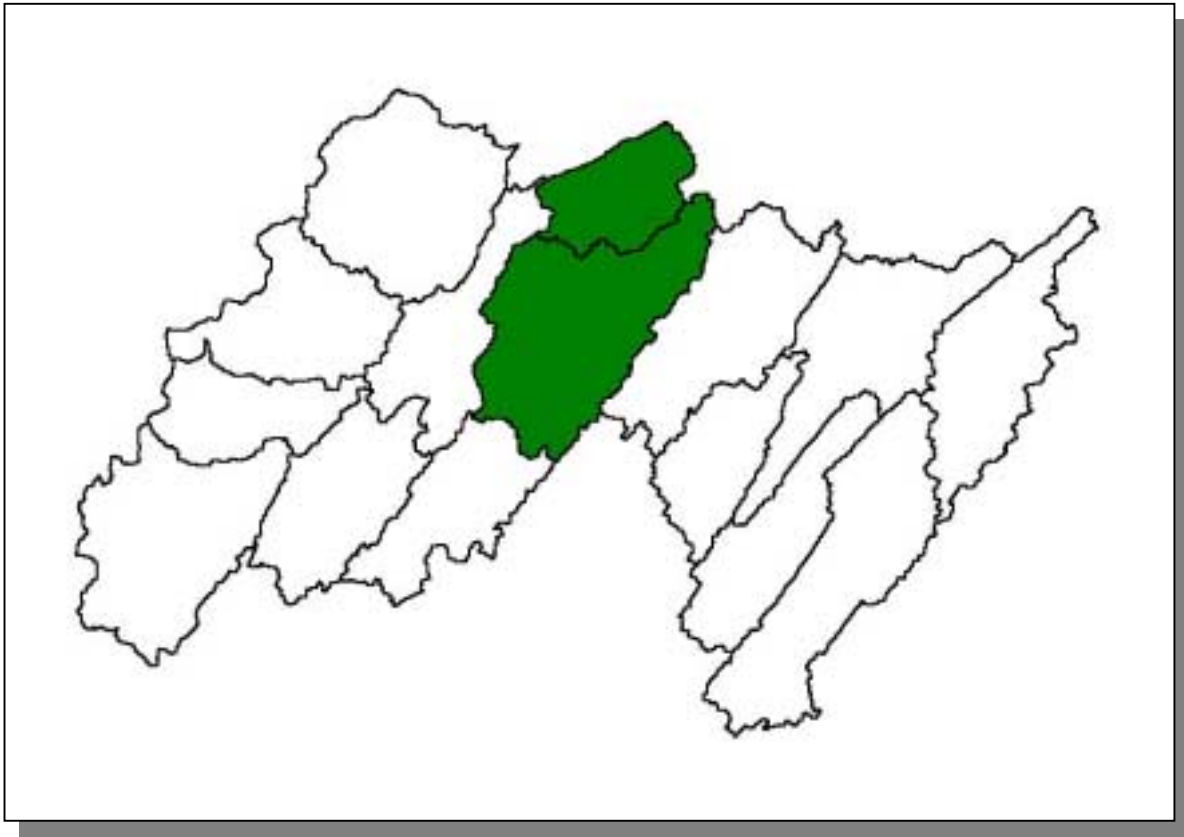


Figure 4-32. Location of Subwatershed 06010201200. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.G.i. General Description.

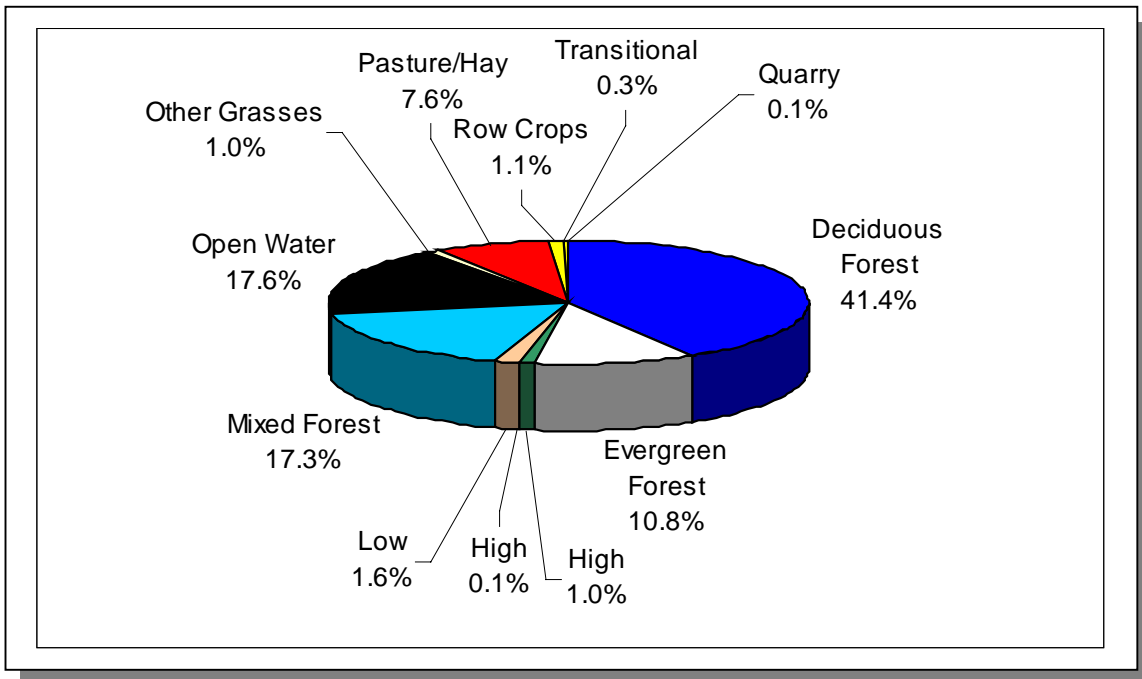


Figure 4-33. Land Use Distribution in Subwatershed 06010201200. More information is provided in Watts Bar-Appendix IV.

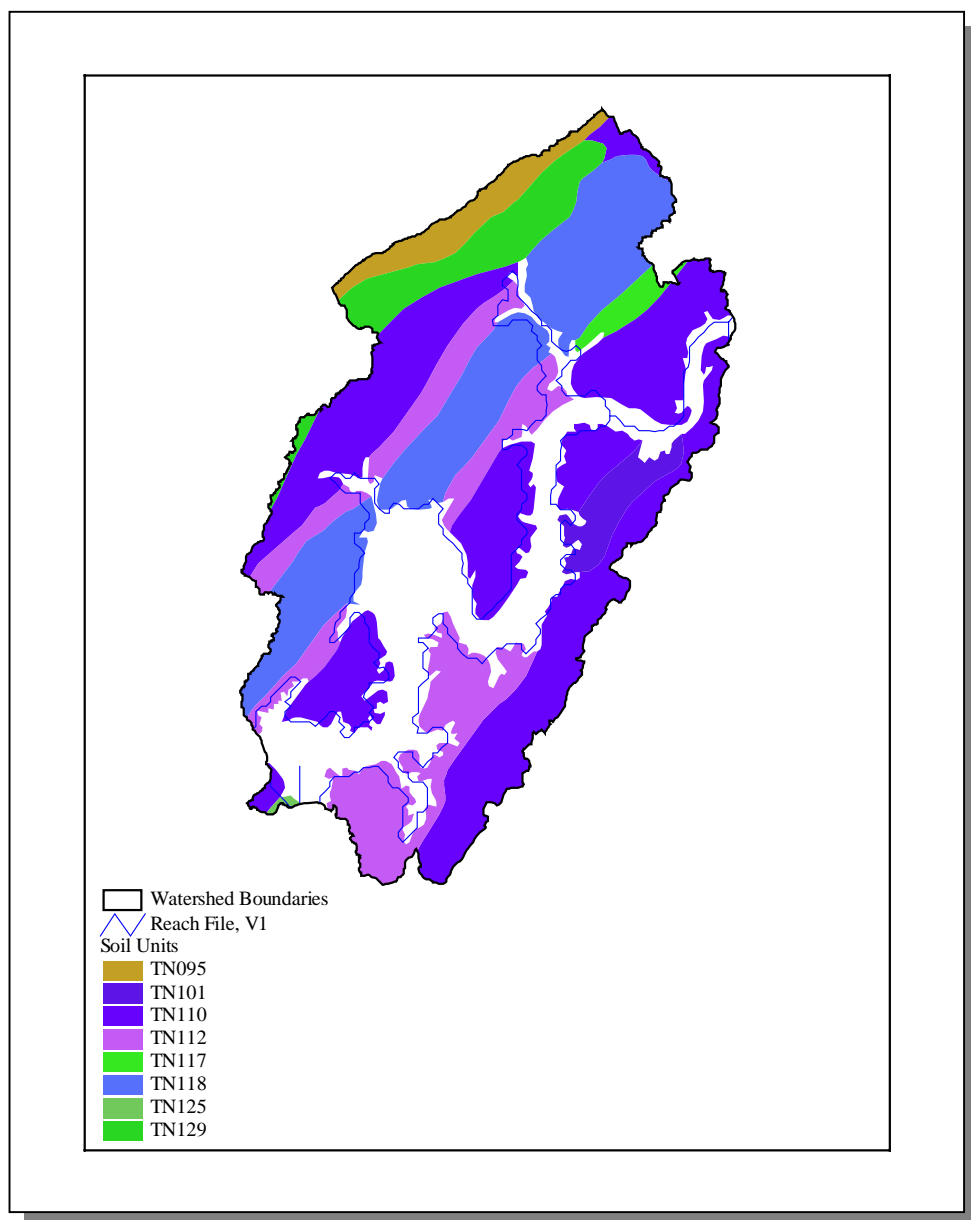


Figure 4-34. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201200.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN095	0.0	B	2.35	5.12	Loam	0.31
TN101	0.0	B	1.71	5.39	Loam	0.35
TN110	0.0	B	2.22	4.96	Loam	0.31
TN112	2.0	C	2.36	5.09	Loam	0.35
TN117	1.0	C	2.06	5.16	Loam	0.37
TN118	0.0	C	6.52	5.12	Loam	0.29
TN125	0.0	C	8.50	5.00	Sandy Loam	0.20
TN129	0.0	B	2.65	5.24	Loam	0.26

Table 4-42. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201200. More information is provided in Watts Bar-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Meigs	8,033	9,690	0.64	51	62	21.6
Rhea	24,344	27,672	0.42	101	115	13.9
Roane	47,227	49,885	23.78	11,229	11,862	5.6
Total	79,604	87,247		11,381	12,039	5.8

Table 4-43. Population Estimates in Subwatershed 06010201200.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Harriman	Roane	7,119	3,234	2,776	445	13
Rockwood	Roane	5,348	2,326	1,818	508	0
Total		12,467	5,560	4,594	953	0

Table 4-44. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 06010201200.

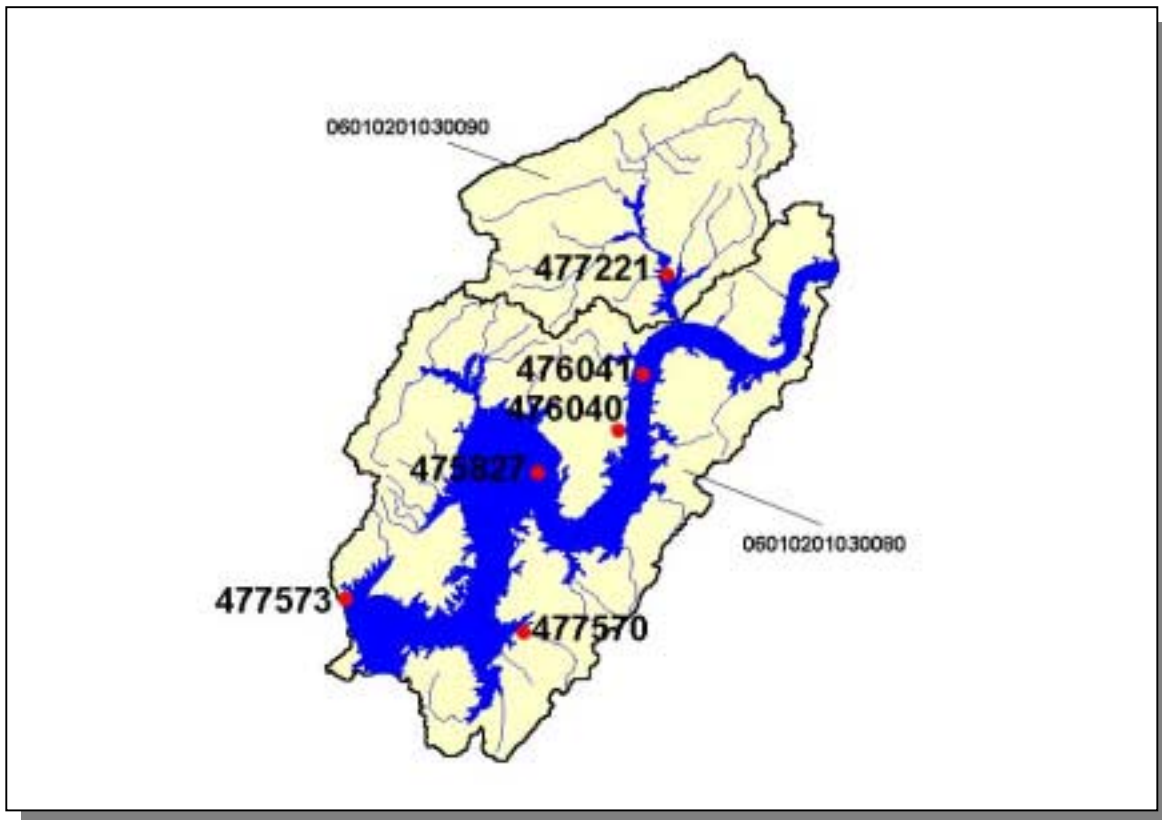


Figure 4-35. Location of STORET Monitoring Sites in Subwatershed 06010201200. Subwatershed 06010201030080 and 06010201030090 boundaries are shown for reference. More information is provided in Watts Bar-Appendix IV.

4.2.G.ii. Point Source Contributions.

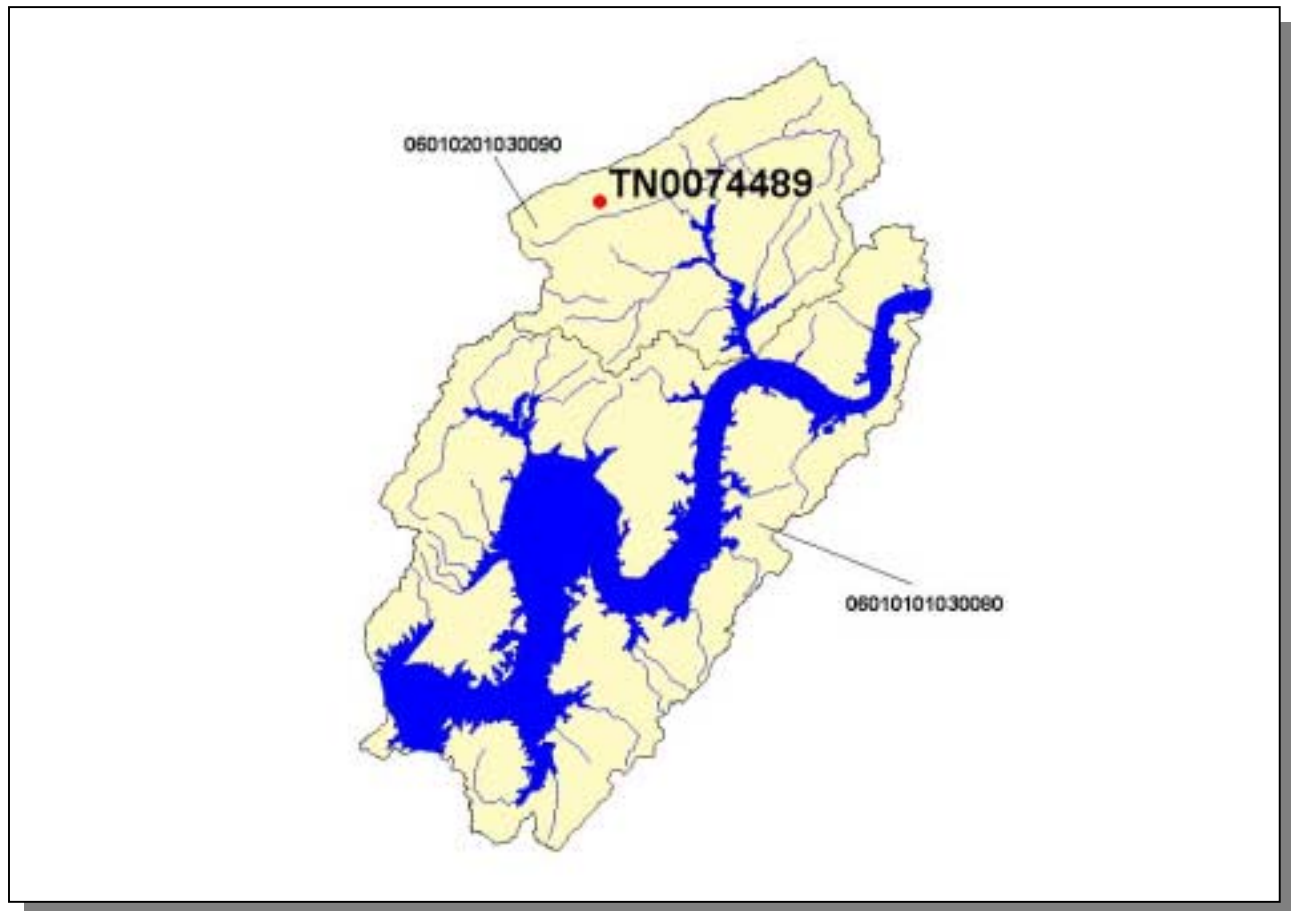


Figure 4-36. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 06010201200. Subwatershed 06010201030080 and 06010201030090 boundaries are shown for reference. More information, including the names of facilities, is provided in Watts Bar-Appendix IV.

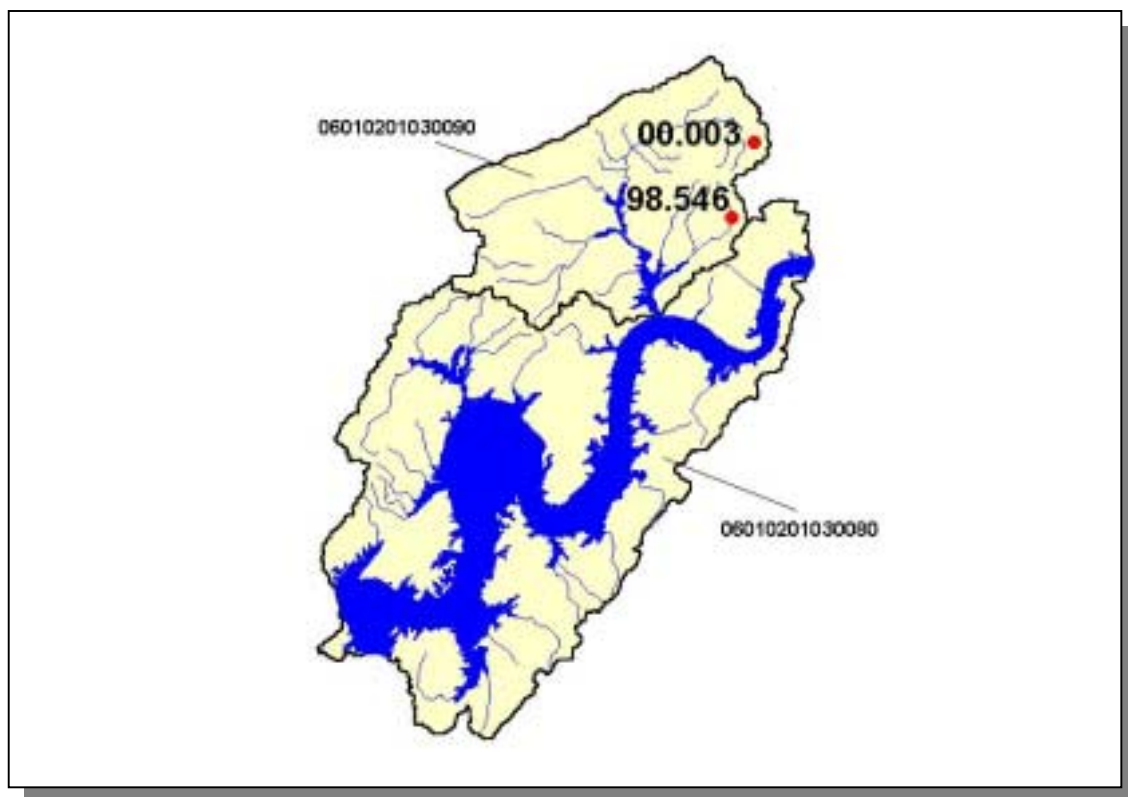


Figure 4-37. Location of ARAP Sites (individual Permits) in Subwatershed 06010201200. Subwatershed 06010201030080 and 06010201030090 boundaries are shown for reference. More details may be found in Watts Bar-Appendix IV.

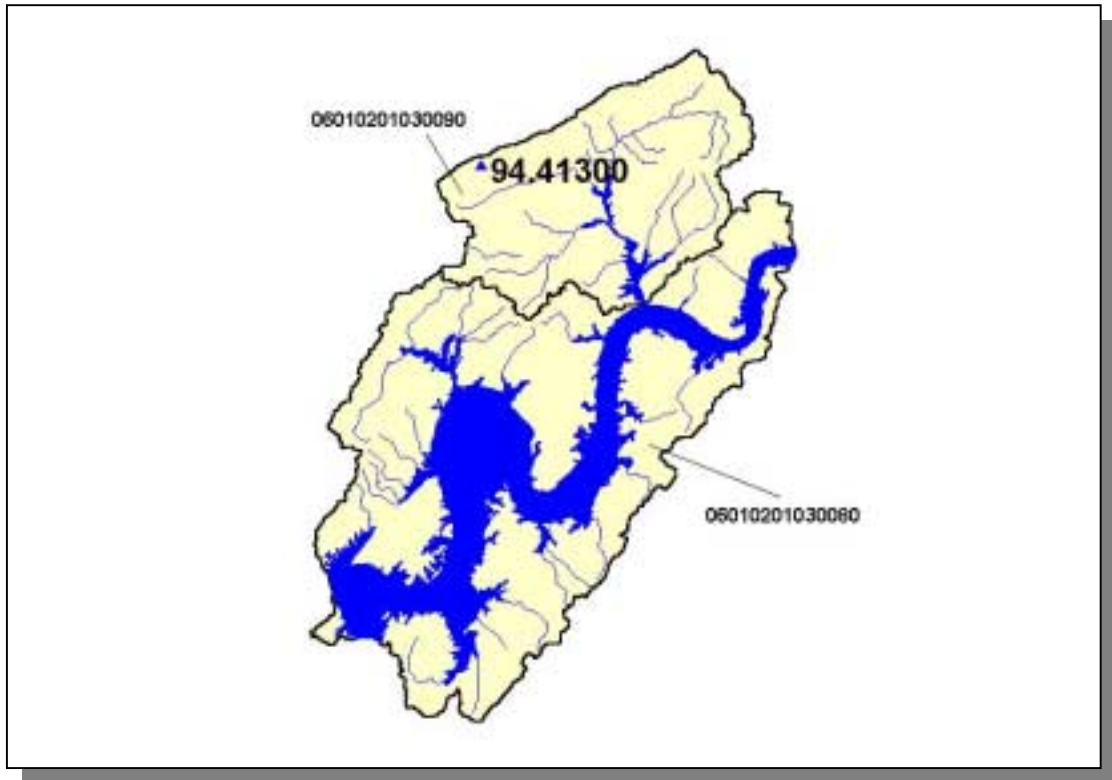


Figure 4-38. Location of Wetland Impact Sites in Subwatershed 06010201200. Sites are from ARAP database. Subwatershed 06010201030080 and 06010201030090 boundaries are shown for reference. More information is presented in Watts Bar-Appendix IV.

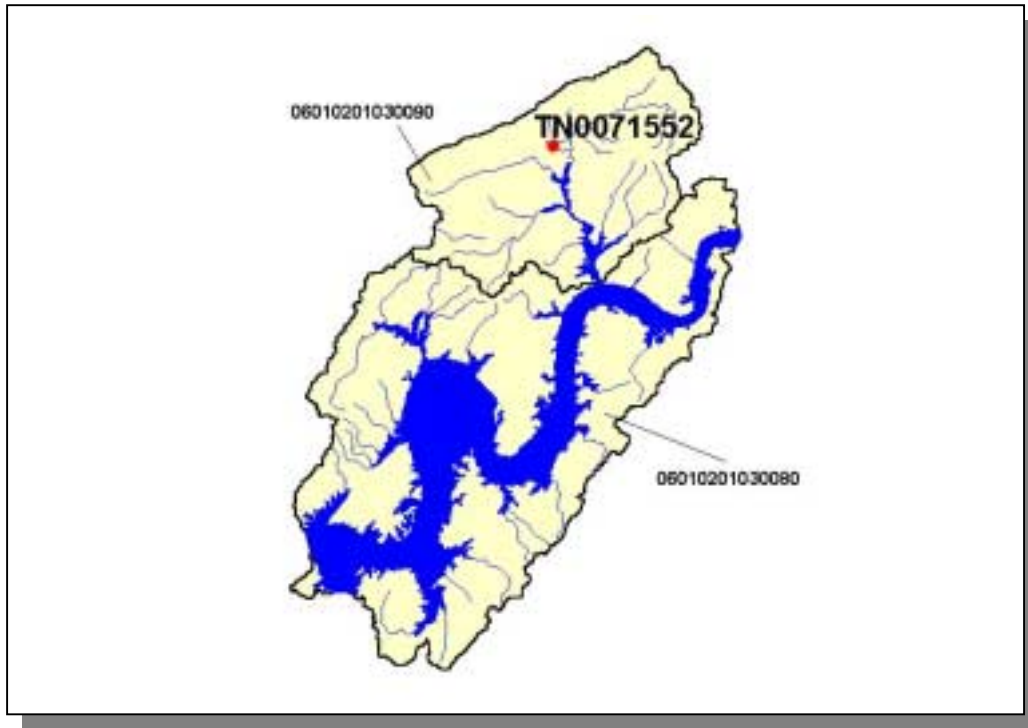


Figure 4-39. Location of Active Mining Sites in Subwatershed 06010201200. Subwatershed 06010201030080 and 06010201030090 boundaries are shown for reference. More information, including the names of facilities, is provided in Watts Bar-Appendix IV.

4.2.A.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List

There are five NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 06010201140:

- TN0074489 discharges to

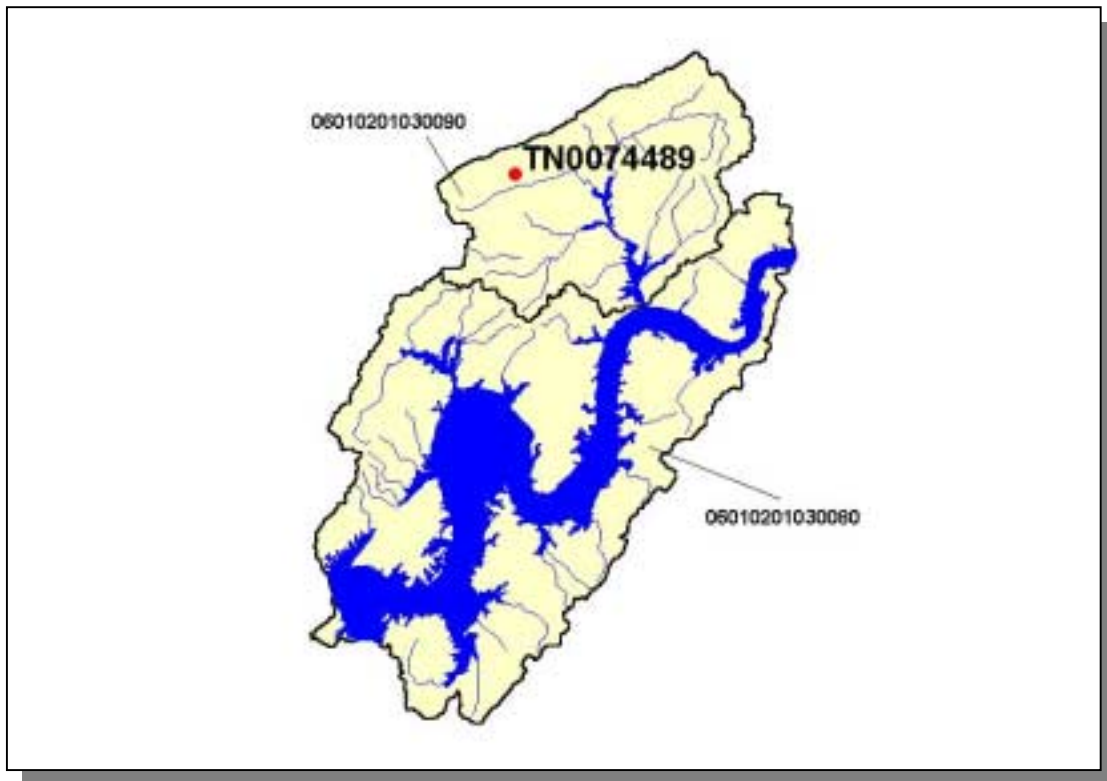


Figure 4-40. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 06010201200. Subwatershed 06010201030080 and 06010201030090 boundaries are shown for reference. The names of facilities are provided in Watts Bar-Appendix IV.

PERMIT #	7Q10	1Q20	30Q2	QDESIGN	QLTA
TN0074489					10.257

Table 4-45. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201200. Data are in million gallons per day (MGD). 30Q2 data were obtained by using data in Flow Duration and Low Flows of Tennessee Streams Through 1992.

PERMIT #	METAL
TN0074489	X

Table 4-46. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201200.

PERMIT #	Fe
TN0074489	X

Table 4-47. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201200.

4.2.G.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
680	1,316	53	<5	15	15

Table 4-48. Summary of Livestock Count Estimates in Subwatershed 06010201200. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Meigs	83.0	83.0	0.2	0.0
Rhea	126.5	126.4	1.7	4.7
Roane	153.1	153.1	1.7	5.1
Total	362.6	326.5	3.6	9.8

Table 4-49. Forest Acreage and Average Removal Rates (1987-1994) in Subwatershed 06010201200.

CROP	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Legume Grass (Hayland)	0.26
Grass (Pastureland)	2.34
Legume (Pastureland)	0.23
Grass, Forbs, Legumes (Mixed Pasture)	0.46
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	1.55
Corn (Row Crops)	2.36
Soybeans (Row Crops)	4.06
Wheat (Close Grown Cropland)	8.50
Forest Land (Grazed)	0.00

Table 4-50. Annual Estimated Total Soil Loss in Subwatershed 06010201200.

4.2.H. 06010201210.

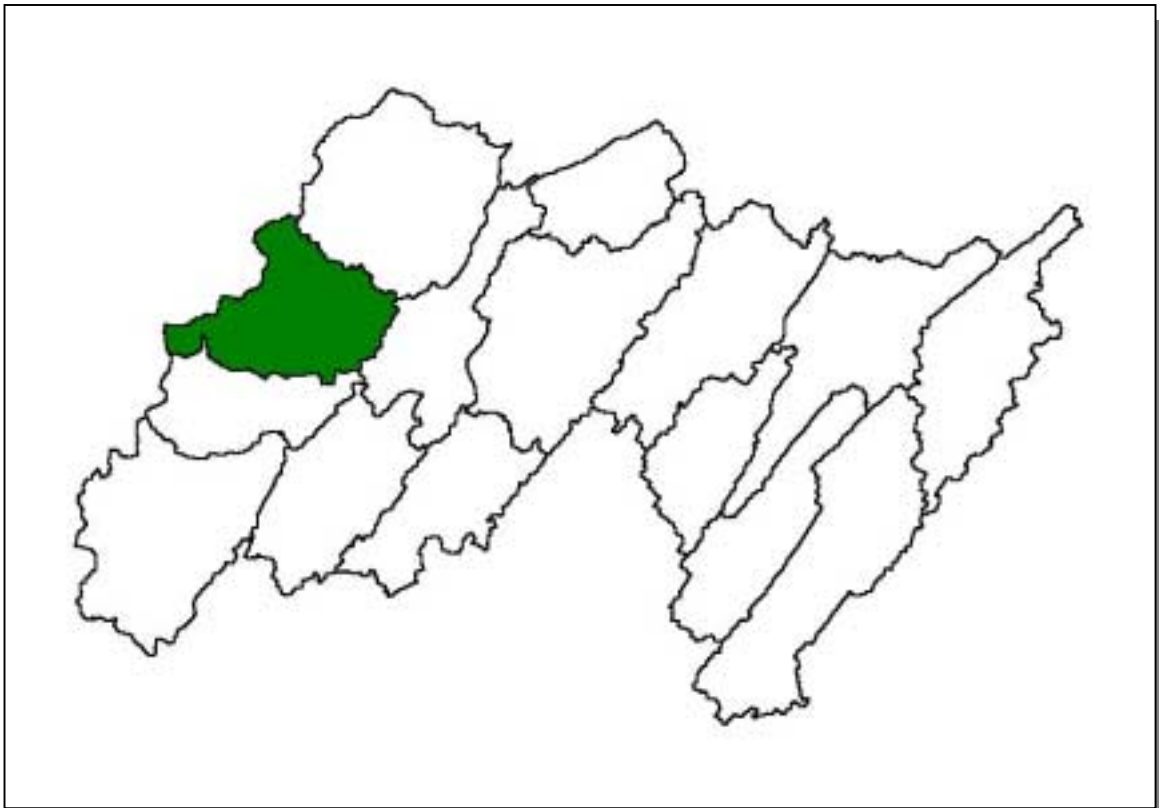


Figure 4-41. Location of Subwatershed 06010201210. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.H.i. General Description.

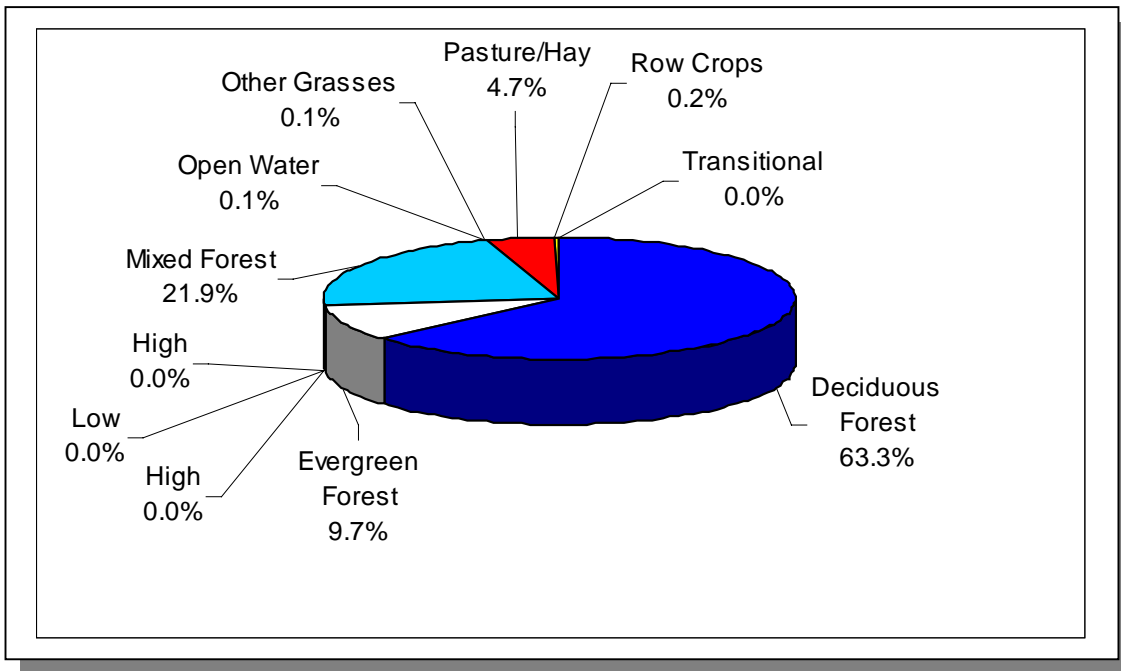


Figure 4-42. Land Use Distribution in Subwatershed 06010201210. More information is provided in Watts Bar-Appendix IV.

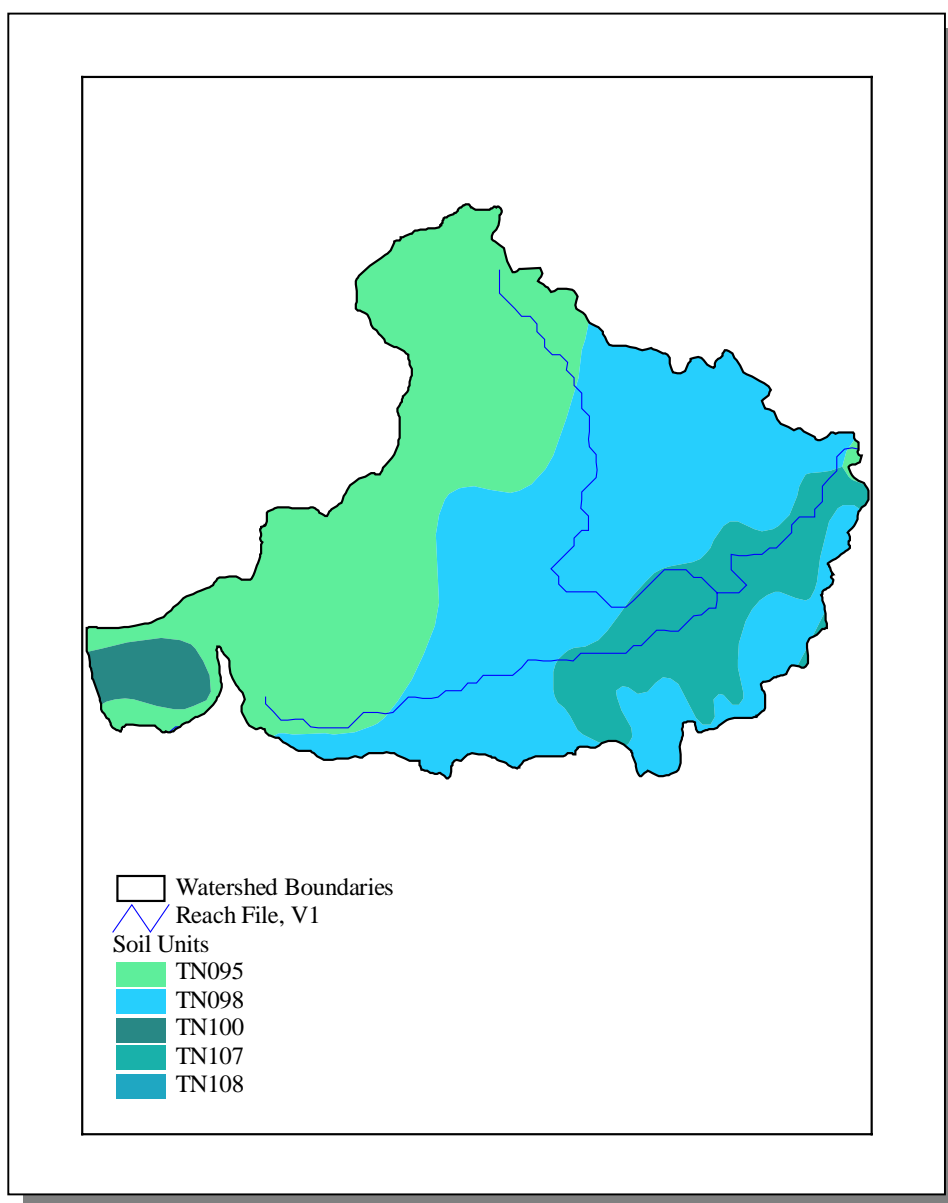


Figure 4-43. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201210.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN095	0.0	B	2.35	5.12	Loam	0.31
TN098	1.0	C	3.98	4.82	Loam	0.32
TN100	0.0	B	1.14	3.35	Sandy Loam	0.21
TN107	1.0	C	6.34	4.84	Loam	0.28
TN108	9.0	C	2.46	4.93	Loam	0.31

Table 4-51. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201210. More information is provided in Watts Bar-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
Bledsoe	9,669	10,650	0.11	11	12	9.1
Cumberland	34,736	43,217	4.41	1,531	1,905	24.4
Rhea	24,344	27,672	3.91	952	1,082	13.7
Total	68,749	81,539		2,494	2,999	20.2

Table 4-52. Population Estimates in Subwatershed 06010201210.

4.2.H.ii. Point Source Contributions.

No Contribution.

4.2.H.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
407	975	87	<5	207	15

Table 4-53. Summary of Livestock Count Estimates in Subwatershed 06010201210. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bledsoe	186.2	186.2	0.9	2.3
Cumberland	320.3	320.3	5.9	22.5
Rhea	126.5	126.4	1.7	4.7
Total	633.0	633.0	8.5	30.5

Table 4-54. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 06010201210.

CROP	TONS/ACRE/YEAR
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.23
Grass (Pastureland)	0.41
Grass, Forbs, Legumes (Mixed Pasture)	0.26
Forest Land (Grazed)	0.00
Corn (Row Crops)	2.89
Soybeans (Row Crops)	5.58
Other Vegetable and Truck Crop	14.05
Grass (Hayland)	3.01
Legume Grass (Hayland)	0.14
Legume (Pastureland)	0.15
Wheat (Close Grown Cropland)	8.31
All Other Row Crops	4.45
Conservation Reserve Program Land	1.00

Table 4-55. Annual Estimated Total Soil Loss in Subwatershed 06010201210.

4.2.I. 06010201220.

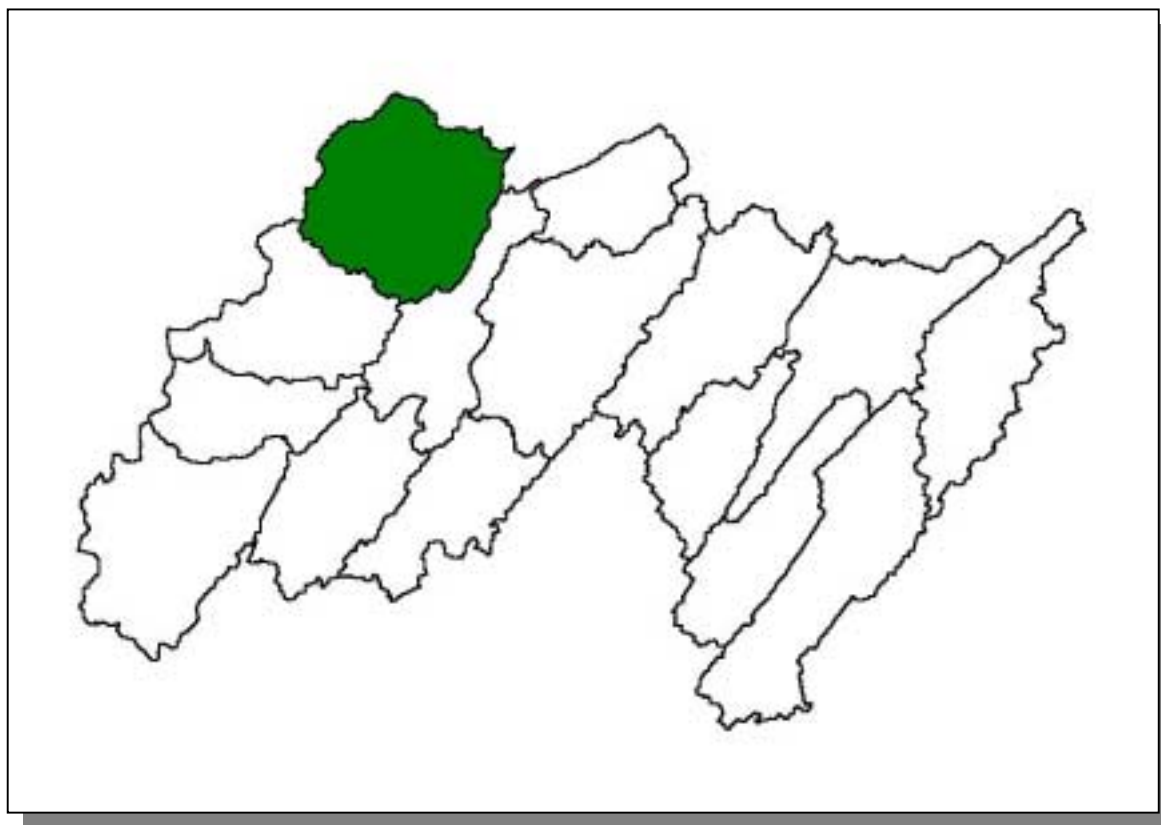


Figure 4-44. Location of Subwatershed 06010201220. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.1.i. General Description.

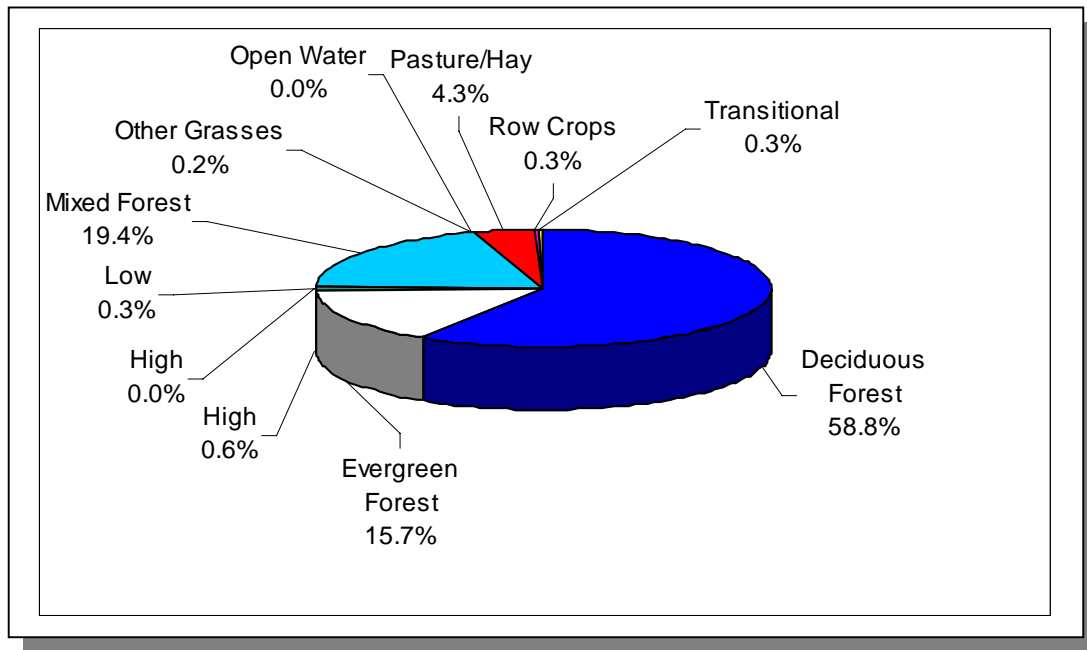


Figure 4-45. Land Use Distribution in Subwatershed 06010201220. More information is provided in Watts Bar-Appendix IV.

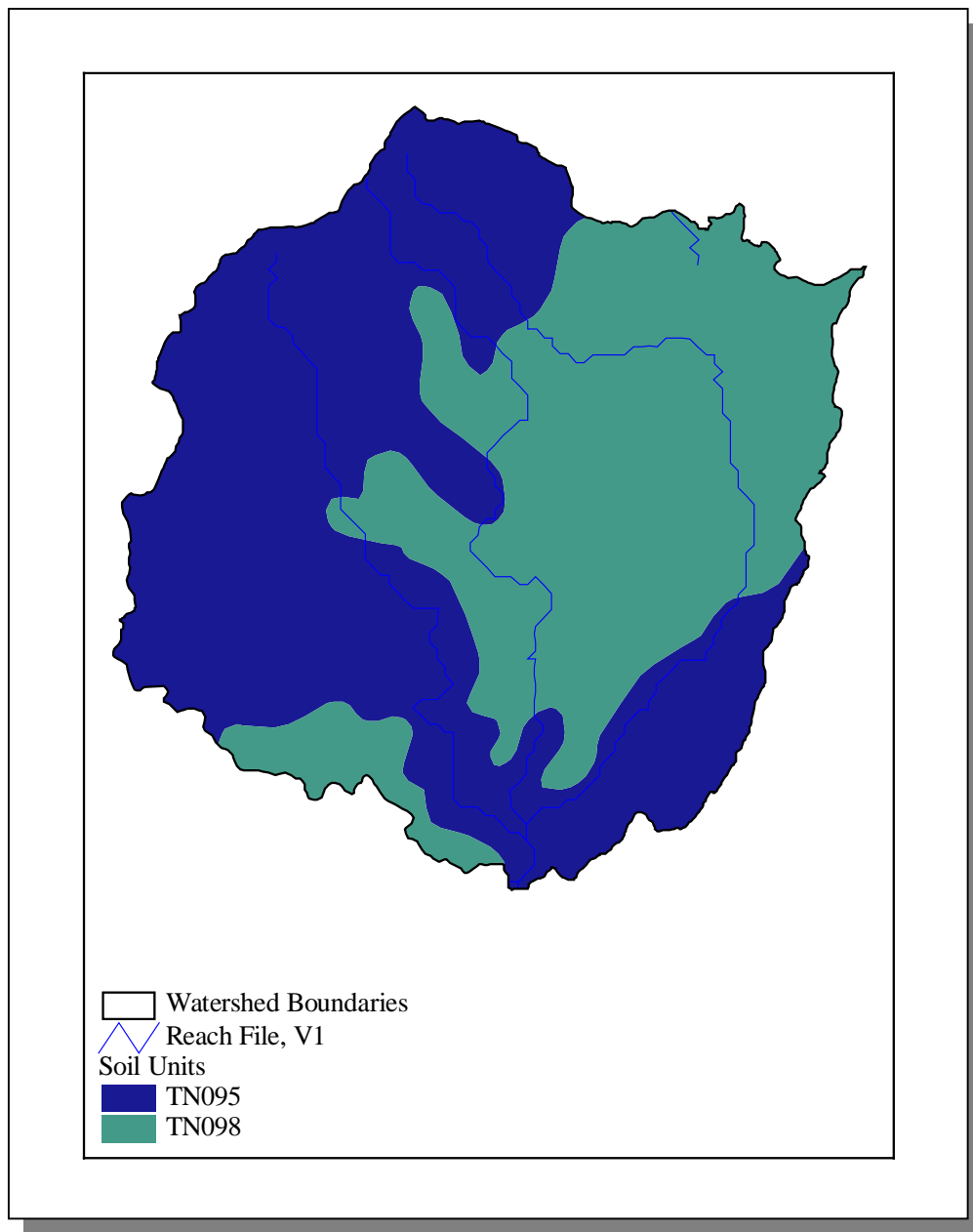


Figure 4-46. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201220.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN095	0.0	B	2.35	5.12	Loam	0.31
TN098	1.0	C	3.98	4.82	Loam	0.32

Table 4-56. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201220. More information is provided in Watts Bar-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Cumberland	34,736	43,217	8.43	2,929	3,644	24.4
Rhea	24,344	27,672	0.27	66	75	13.6
Roane	47,227	49,885	0.79	373	394	5.6
Totals	106,307	120,774		3,368	4,113	22.1

Table 4-57. Population Estimates in Subwatershed 06010201220.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Crab Orchard	Cumberland	876	420	71	328	21

Table 4-58. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 06010201220.



Figure 4-47. Location of STORET Monitoring Sites in Subwatershed 06010208090. More information is provided in Watts Bar-Appendix IV.

4.2.I.ii. Point Source Contributions.

No Contributions.

4.2.I.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
387	949	94	<5	247	19

Table 4-59. Summary of Livestock Count Estimates in Subwatershed 06010201220. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cumberland	320.3	320.3	5.9	22.5
Rhea	126.5	126.4	1.7	4.7
Roane	153.1	153.1	1.7	5.1
Total	599.9	599.7	9.3	32.3

Table 4-60. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 06010201220

CROP	TONS/ACRE/YEAR
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.30
Grass (Pastureland)	0.50
Grass, Forbs, Legumes (Mixed Pasture)	0.27
Forest Land (Grazed)	0.00
Corn (Row Crops)	3.72
Soybeans (Row Crops)	6.23
Other Vegetable and Truck Crops	14.05
Grass (Hayland)	3.05
Legume Grass (Hayland)	0.16
Legume (Pastureland)	0.15
Non Agricultural Land Use	0.00
Wheat (Close Grown Cropland)	8.50

Table 4-61. Annual Estimated Total Soil Loss in Subwatershed 06010201220.

4.2.J. 06010201230.

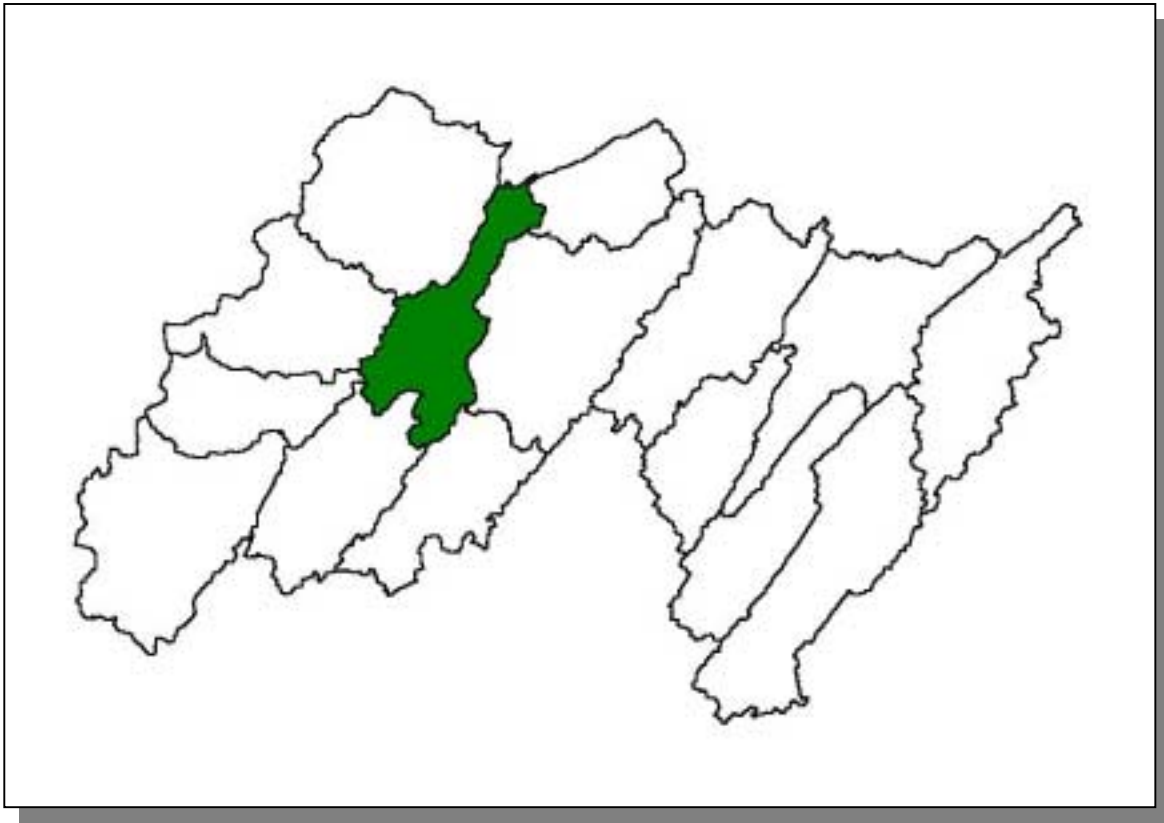


Figure 4-48. Location of Subwatershed 06010201230. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.J.i. General Description.

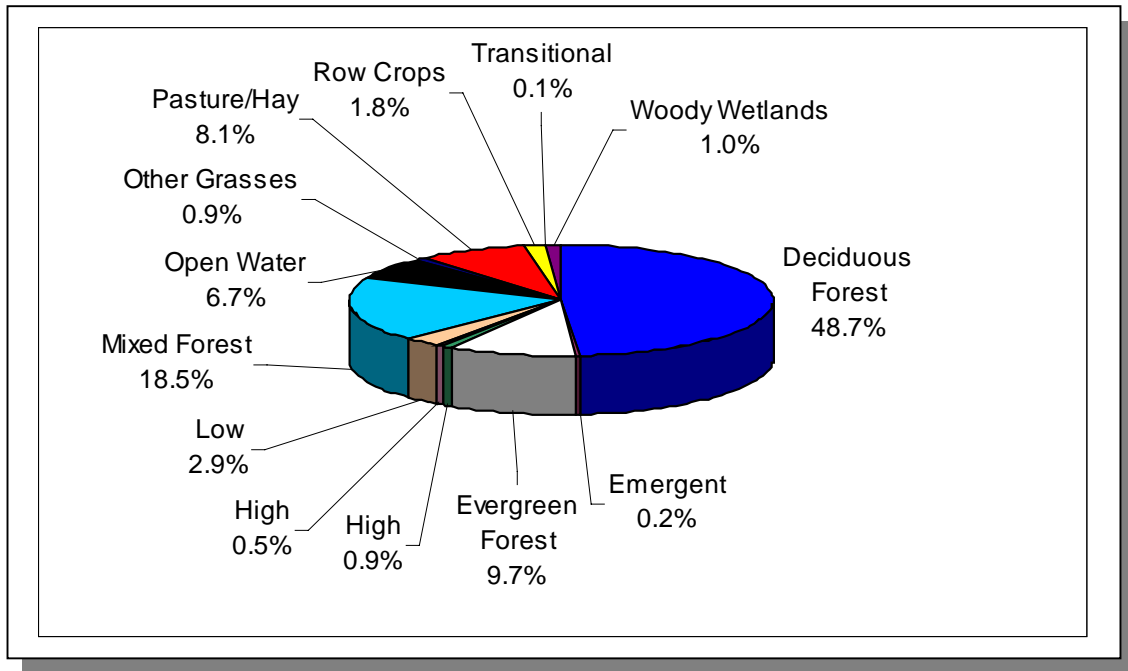


Figure 4-49. Land Use Distribution in Subwatershed 06010201230. More information is provided in Watts Bar-Appendix IV.

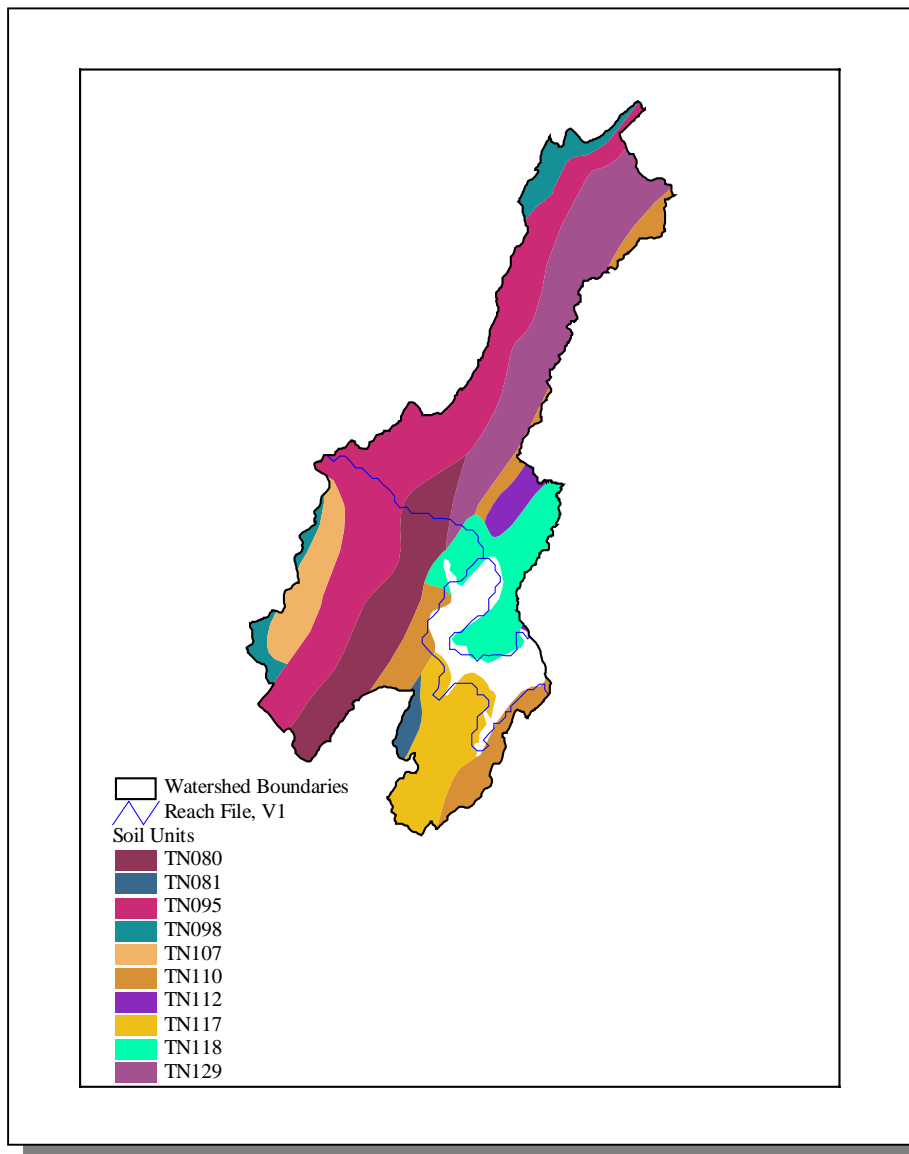


Figure 4-50. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201230.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN080	1.00	C	1.38	5.16	Loam	0.35
TN081	2.00	C	1.41	5.48	Sandy Loam	0.35
TN095	0.00	B	2.35	5.12	Loam	0.31
TN098	1.00	C	3.98	4.82	Loam	0.32
TN107	1.00	C	6.34	4.84	Loam	0.28
TN110	0.00	B	2.22	4.96	Loam	0.31
TN112	2.00	C	2.36	5.09	Loam	0.35
TN117	1.00	C	2.06	5.16	Loam	0.37
TN118	0.00	C	6.52	5.12	Loam	0.29
TN129	0.00	B	2.65	5.24	Loam	0.26

Table 4-62. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201230. More information is provided in Watts Bar-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Cumberland	34,736	43,217	0.05	18	23	27.8
Rhea	24,344	27,672	5.74	1,397	1,588	13.7
Roane	47,227	49,885	4.32	2,041	2,156	5.6
Totals	106,307	120,774		3,456	3,767	9.0

Table 4-63. Population Estimates in Subwatershed 06010201230.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Rockwood	Roane	5,348	2,326	1,818	508	0

Table 4-64. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 06010201230.

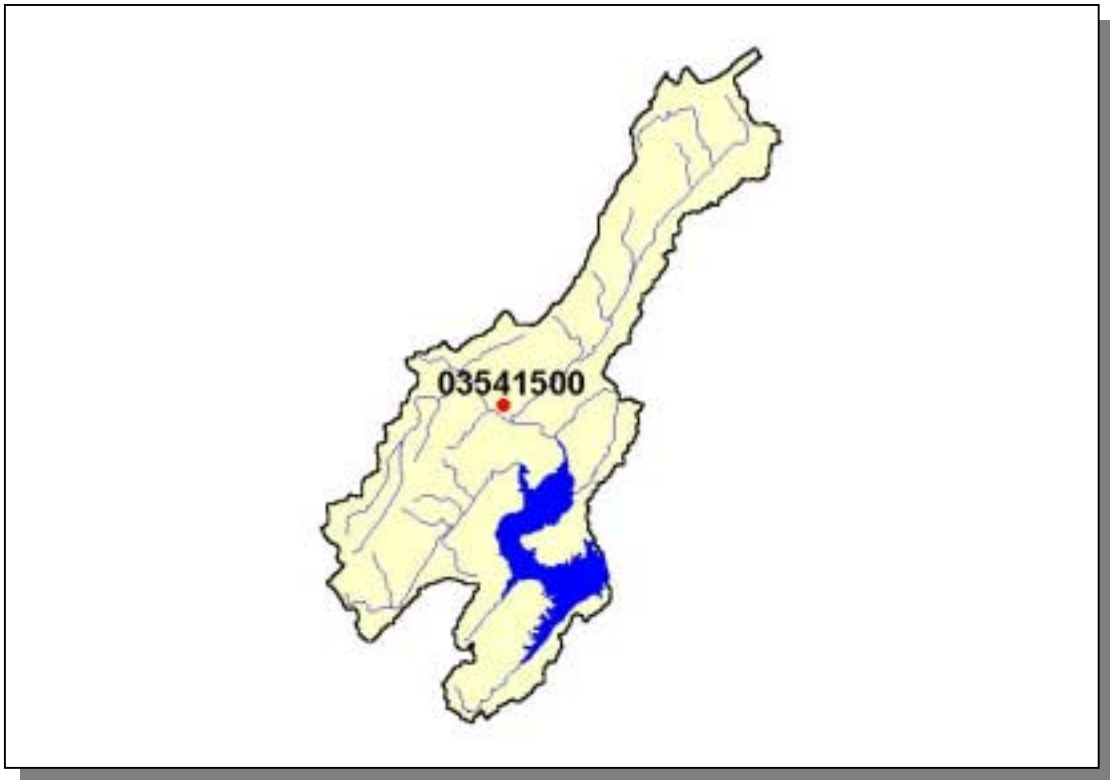


Figure 4-51. Location of Historical Streamflow Data Collection Sites in Subwatershed 06010201230. More information is provided in Watts Bar-Appendix IV.

4.2.J.ii. Point Source Contributions.

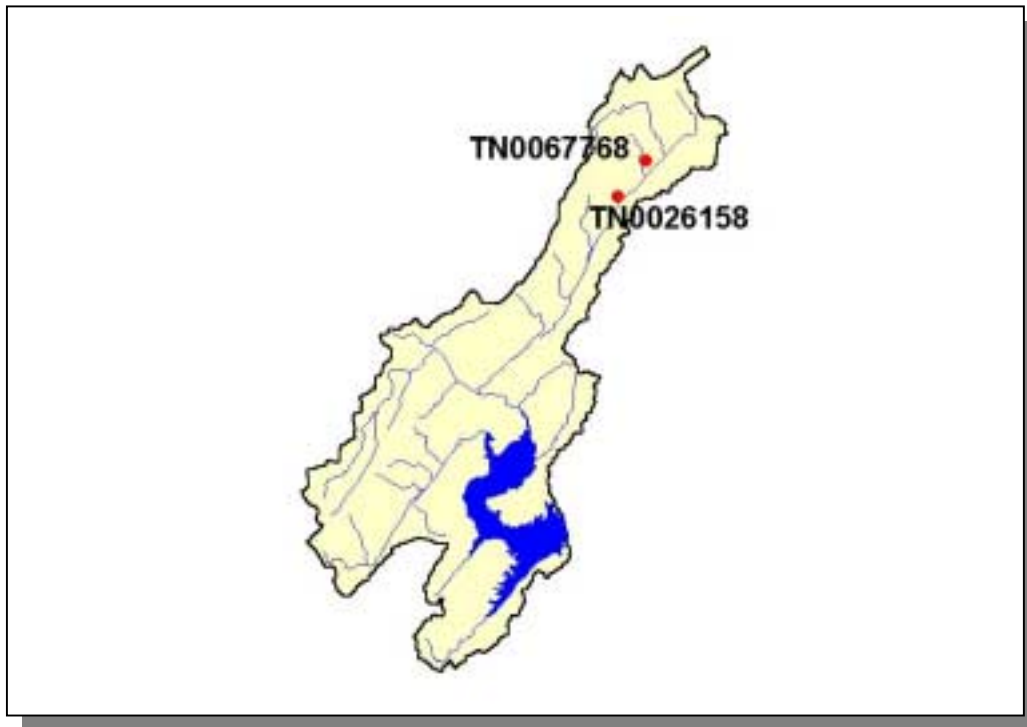


Figure 4-52. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 06010201230. More information, including the names of facilities, is provided in Watts Bar-Appendix IV.

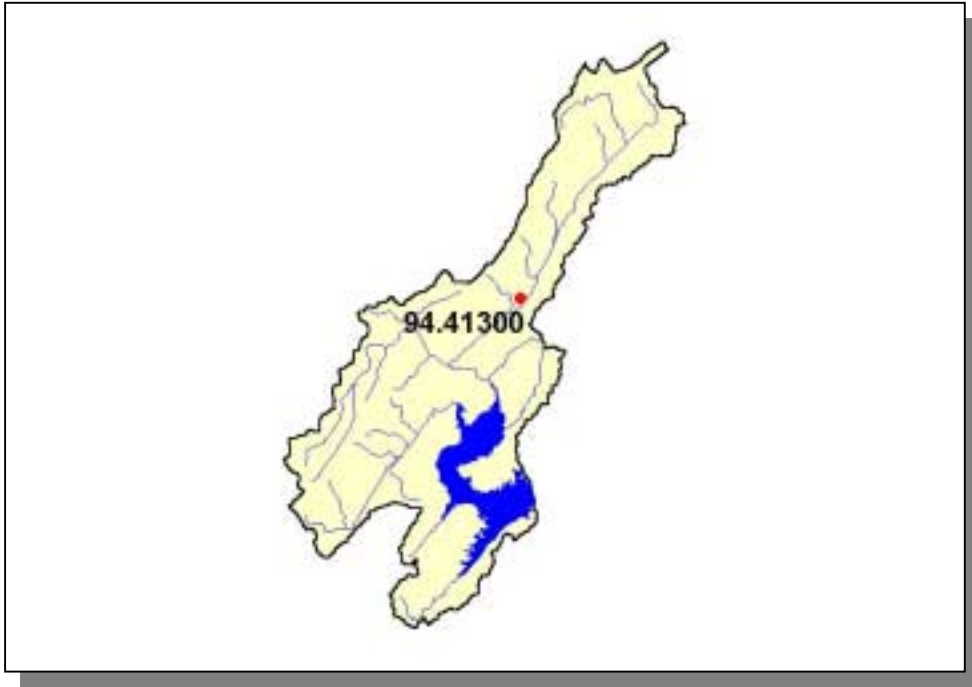


Figure 4-53. Location of Wetland Mitigation Sites in Subwatershed 06010201230. Sites are from ARAP database. More information is presented in Watts Bar-Appendix IV.

4.2.A.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List

There are two NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 06010201230:

- TN0026158 discharges to
- TN0067768 discharges to

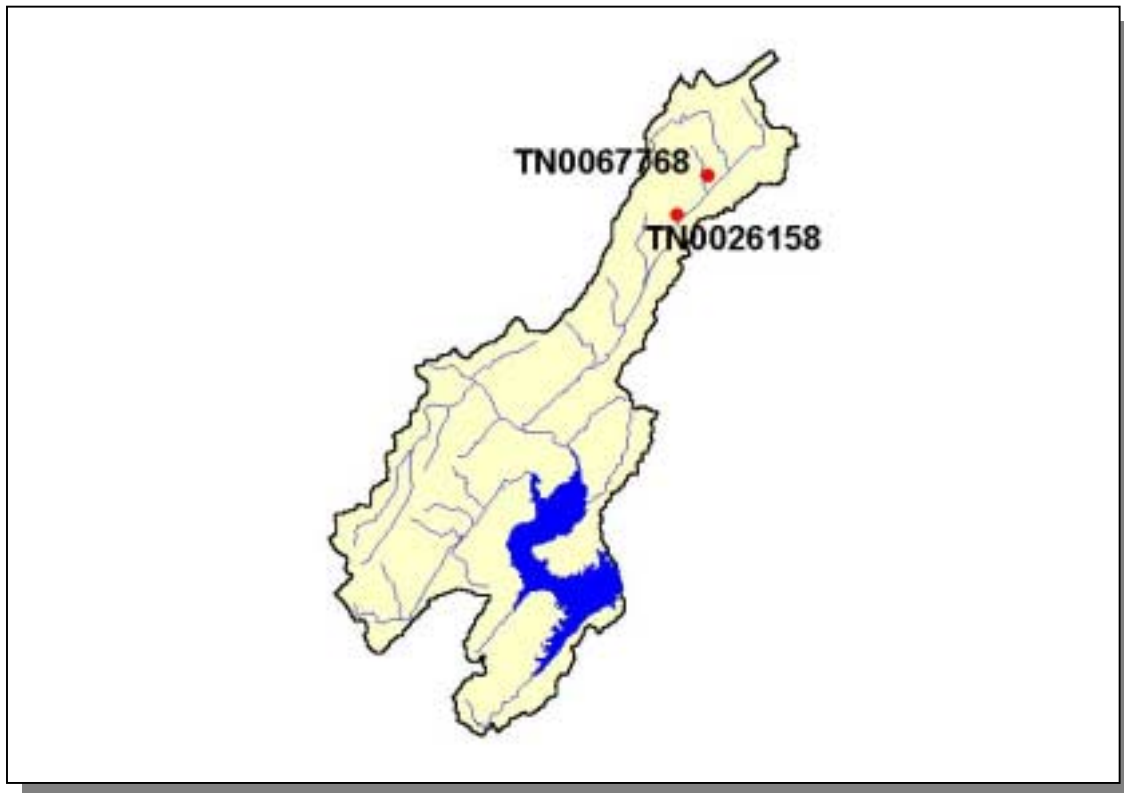


Figure 4-54. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 06010201230. The names of facilities are provided in Watts Bar-Appendix IV.

PERMIT #	7Q10	1Q20	30Q2	QDESIGN	QLTA
TN0026158				1.65	
TN0067768					0.1105

Table 4-65. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201230. Data are in million gallons per day (MGD). 30Q2 data were obtained by using data in Flow Duration and Low Flows of Tennessee Streams Through 1992.

PERMIT #	CBOD ₅	NH ₃	FECAL	METAL	WET
TN0026158	X	X	X		X
TN0067768	X			X	

Table 4-66. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201230.

PERMIT #	Hg	Cr	Ni	Pb	Cd
TN0067768	X	X	X	X	X

Table 4-67. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201230.

4.2.J.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Milk Cow	Sheep
6,349	12,317	487	22	158	487	141

Table 4-68. Summary of Livestock Count Estimates in Subwatershed 06010201230. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cumberland	320.3	320.3	5.9	22.5
Rhea	126.5	126.4	1.7	4.7
Roane	153.1	153.1	1.7	5.1
Total	599.9	599.8	9.3	32.3

Table 4-69. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 06010201230.

CROP	TONS/ACRE/YEAR
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.85
Grass (Pastureland)	1.34
Grass, Forbs, Legumes (Mixed Pasture)	0.35
Forest Land (Grazed)	0.00
Corn (Row Crops)	0.65
Soybeans (Row Crops)	4.10
Other Vegetable and Truck Crop	14.05
Grass (Hayland)	3.05
Legume Grass (Hayland)	0.16
Legume (Pastureland)	0.23
Non Agricultural Land Use	0.00
Wheat (Close Grown Cropland)	8.50

Table 4-70. Annual Estimated Total Soil Loss in Subwatershed 06010201230.

4.2.K. 06010201240.

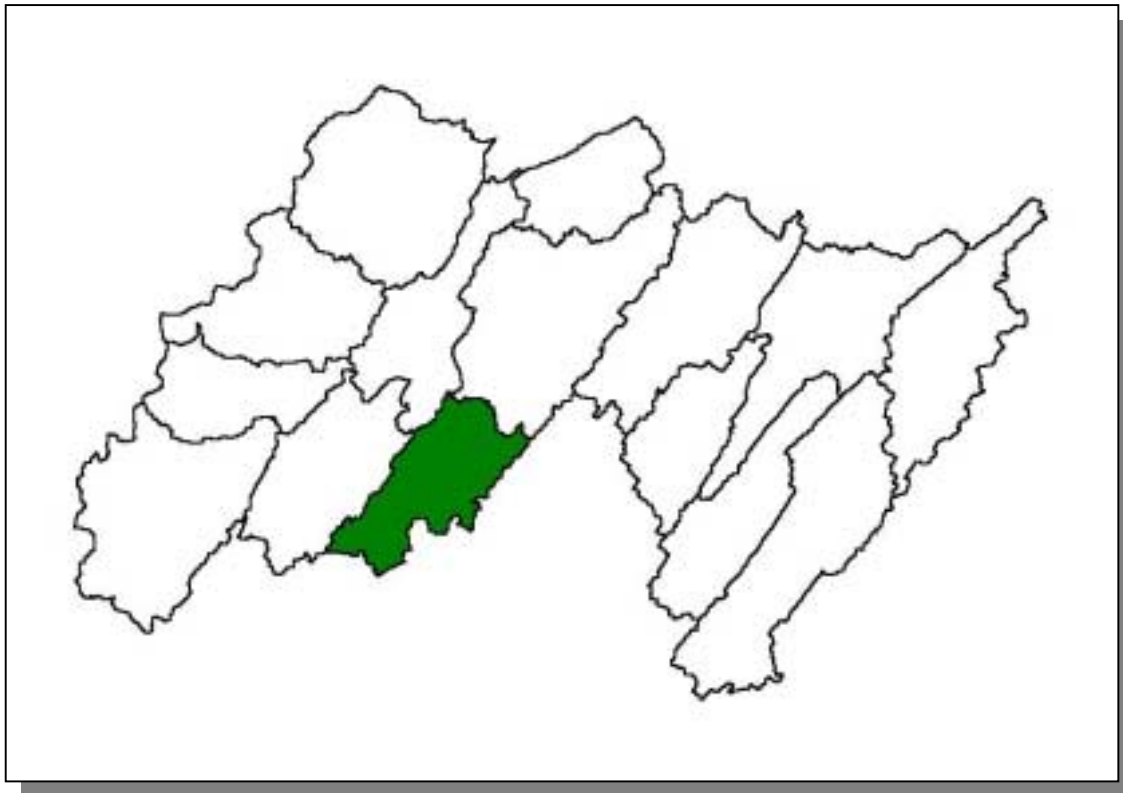


Figure 4-55. Location of Subwatershed 06010201240. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.K.i. General Description.

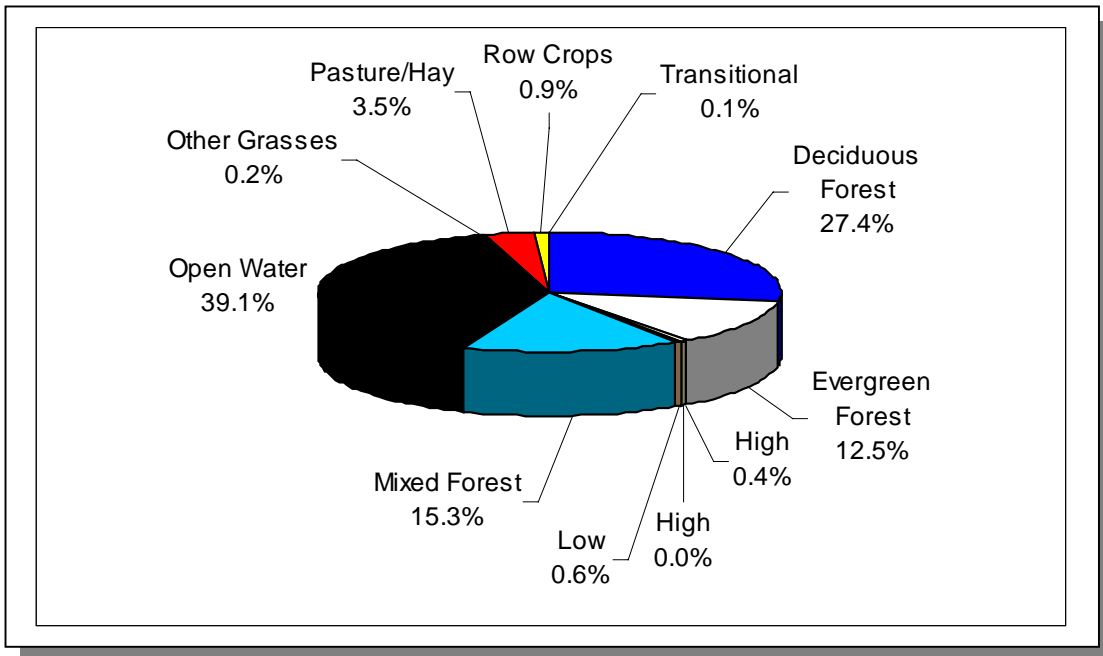


Figure 4-56. Land Use Distribution in Subwatershed 06010201240. More information is provided in Watts Bar-Appendix IV.

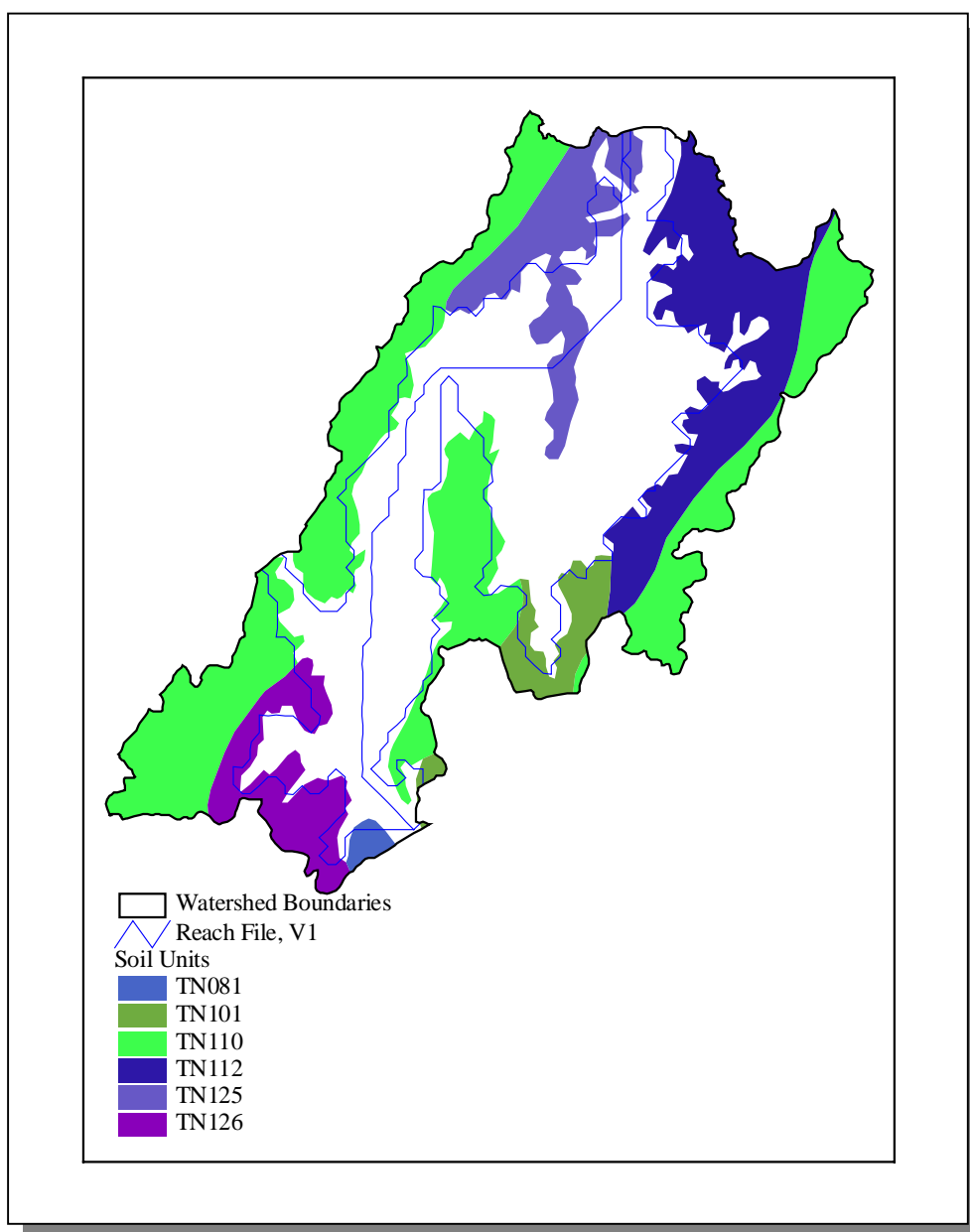


Figure 4-57. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201240.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN081	2.00	C	1.41	5.48	Silty Loam	0.35
TN101	0.00	B	1.71	5.39	Loam	0.35
TN110	0.00	B	2.22	4.96	Loam	0.31
TN112	2.00	C	2.36	5.09	Loam	0.35
TN125	0.00	C	8.50	5.00	Sandy Loam	0.20
TN126	19.00	C	1.30	5.12	Loam	0.33

Table 4-71. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201240. More information is provided in Watts Bar-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
Meigs	8,033	9,690	8.10	650	785	20.8
Rhea	24,344	27,672	5.42	1,319	1,499	13.6
Roane	47,227	49,885	<0.1	2	2	0.0
Totals	79,604	87,247				16.0

Table 4-72. Population Estimates in Subwatershed 06010201240.

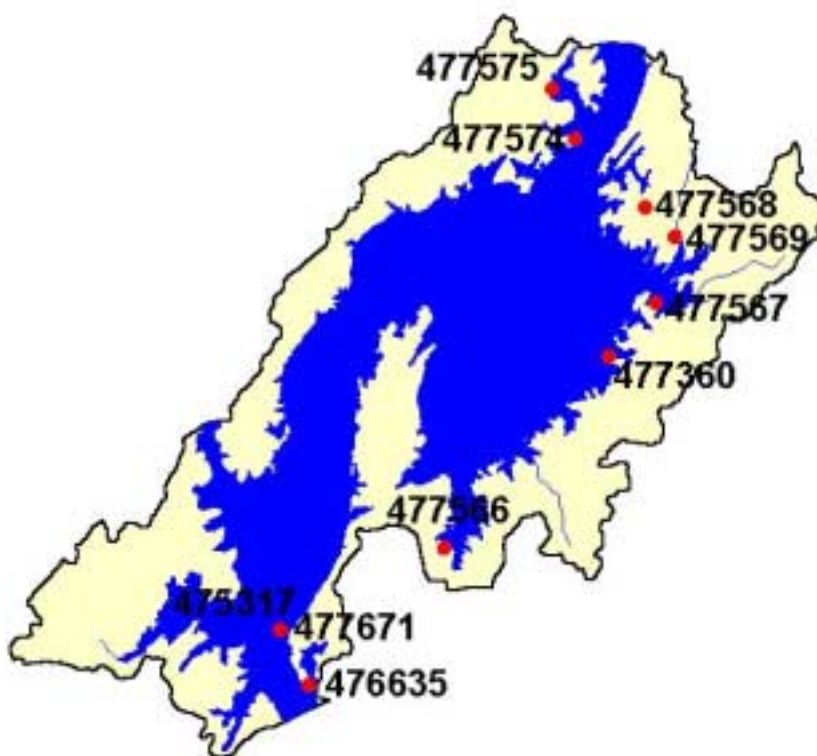


Figure 4-58. Location of STORET Monitoring Sites in Subwatershed 06010201240. More information is provided in Watts Bar-Appendix IV.

4.2.K.ii. Point Source Contributions.

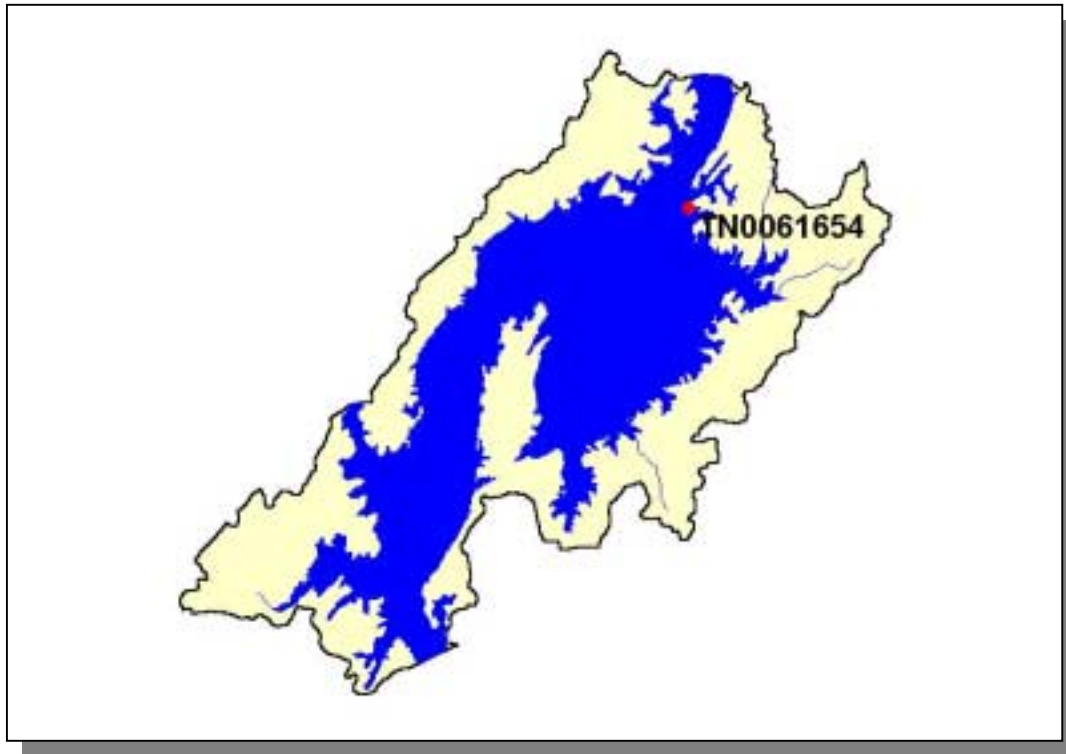


Figure 4-59. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 06010201240. More information, including the names of facilities, is provided in Watts Bar-Appendix IV.

4.2.A.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List

There is one NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 06010201240:

- TN0061654 discharges to

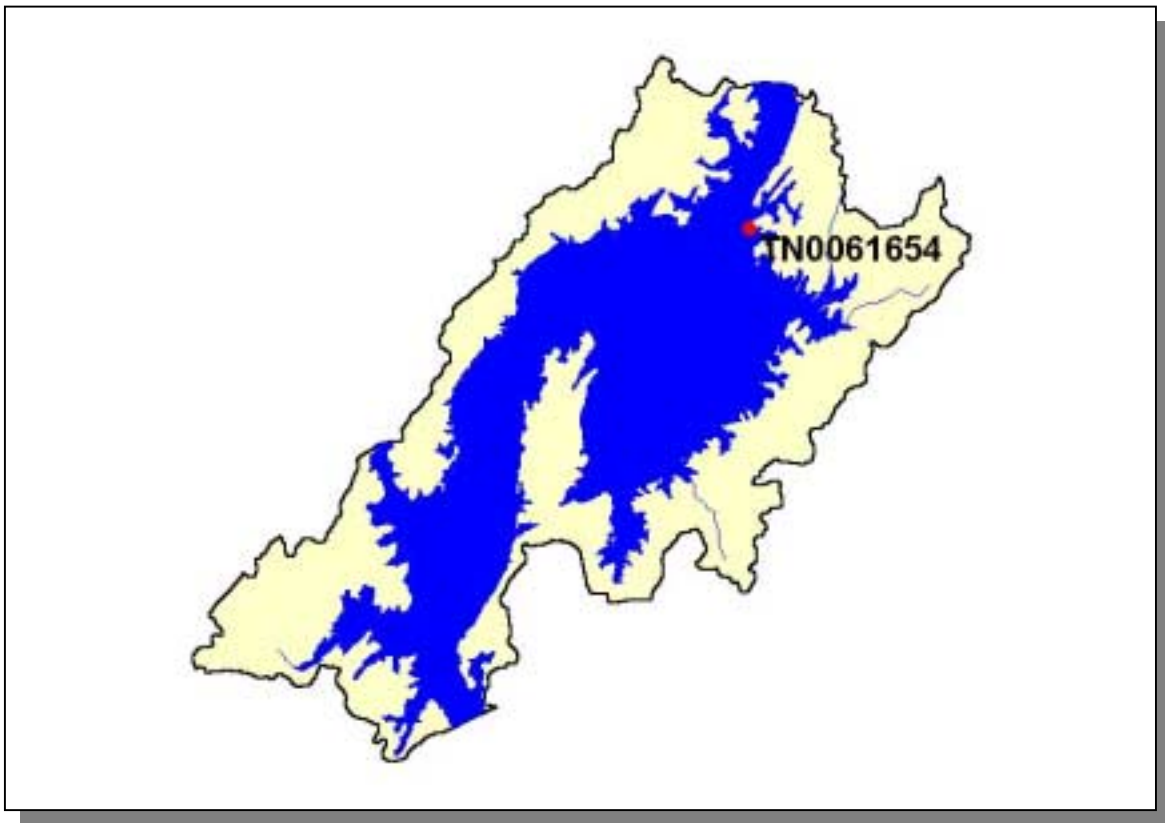


Figure 4-60. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 06010201240. The names of facilities are provided in Watts Bar-Appendix IV.

PERMIT #	7Q10	1Q20	30Q2	QDESIGN	QLTA
TN0061654				0.03	0.0004

Table 4-73. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201240. Data are in million gallons per day (MGD). 30Q2 data were obtained by using data in Flow Duration and Low Flows of Tennessee Streams Through 1992.

PERMIT #	CBOD ₅	FECAL
TN0061654	X	X

Table 4-74. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201240.

4.2.K.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)			
Beef Cow 83	Cattle 187	Milk Cow 11	Hogs 13

Table 4-75. Summary of Livestock Count Estimates in Subwatershed 06010201240. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Meigs	83.0	83.0	0.2	0.0
Rhei	126.5	126.4	1.7	4.7
Roane	153.1	153.1	1.7	5.1
Total	362.6	363.5	3.6	9.8

Table 4-76. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 06010201240.

CROP	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Legume Grass (Hayland)	0.11
Grass (Pastureland)	0.31
Legume (Pastureland)	0.23
Grass, Forbs, Legumes (Mixed Pasture)	0.21
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.28
Corn (Row Crops)	2.34
Soybeans (Row Crops)	4.06
Wheat (Close Grown Cropland)	8.50
Forest Land (Grazed)	0.00

Table 4-77. Annual Estimated Total Soil Loss in Subwatershed 06010201240.

4.2.L. 06010201250.

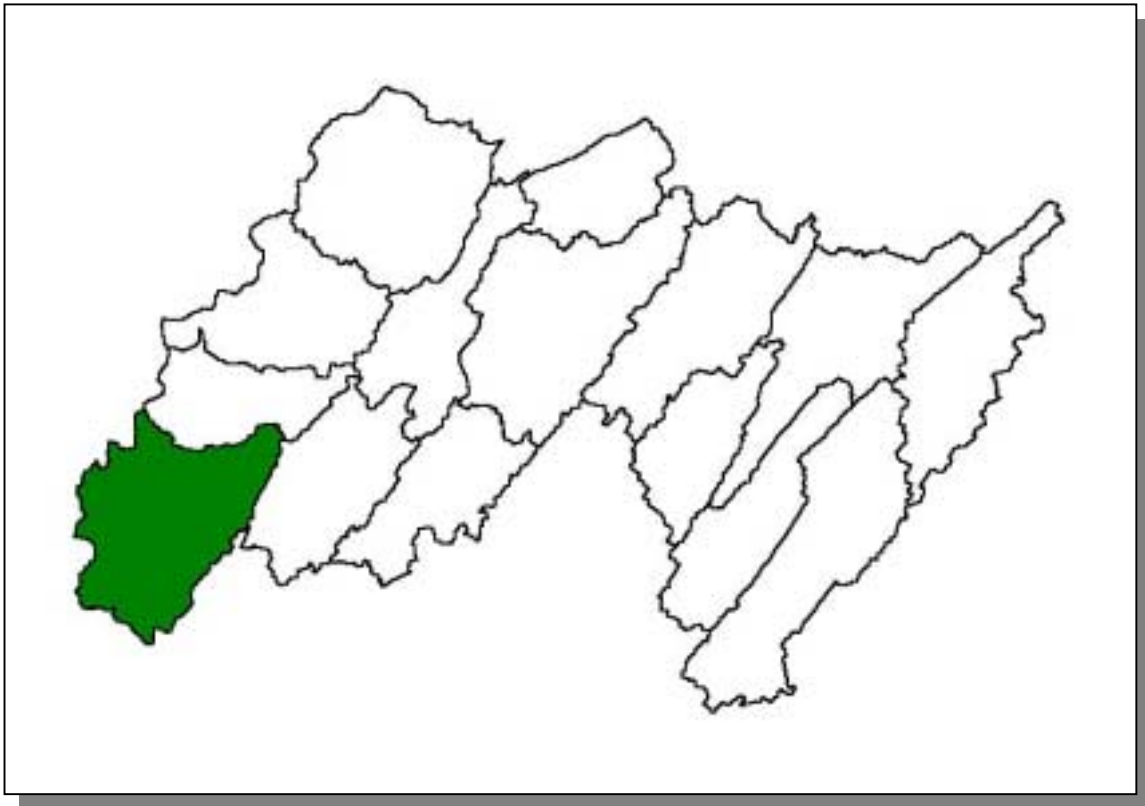


Figure 4-61. Location of Subwatershed 06010201250. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.L.i. General Description.

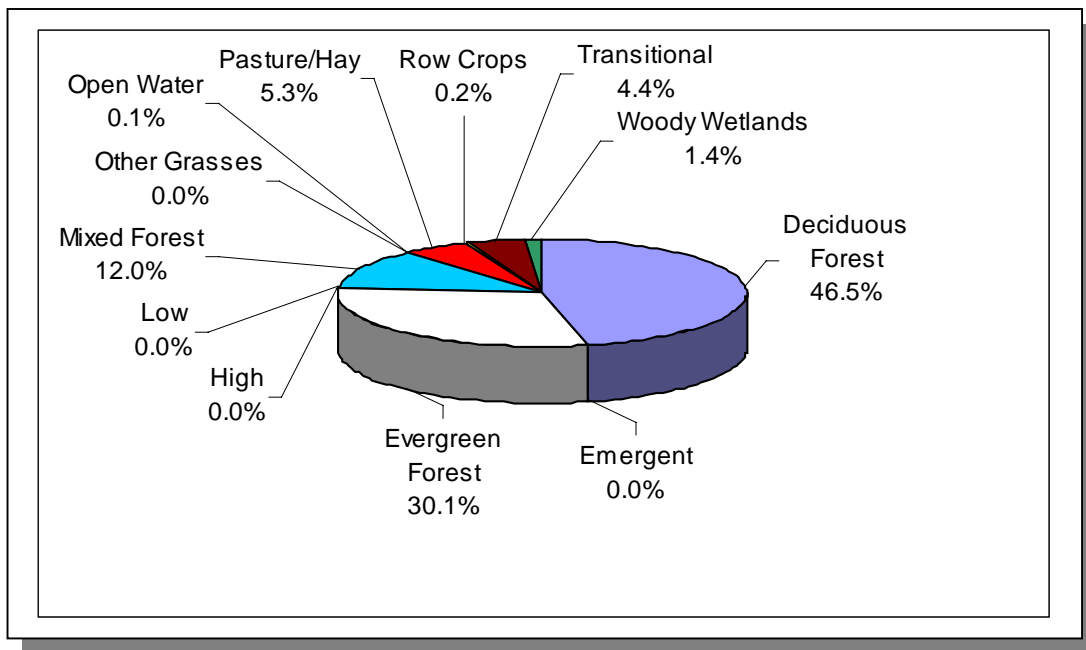


Figure 4-62. Land Use Distribution in Subwatershed 06010201250. More information is provided in Watts Bar-Appendix IV.

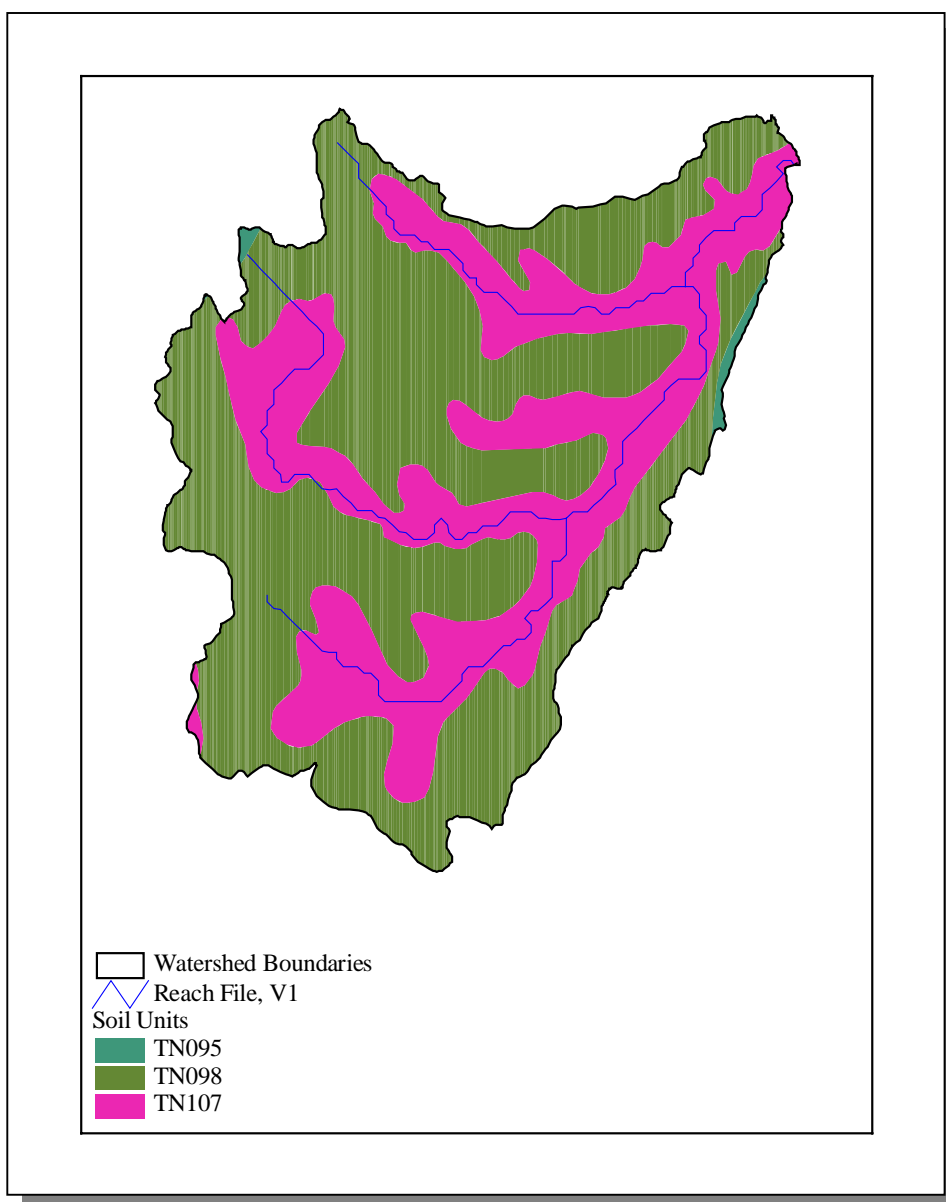


Figure 4-63. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201250.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN095	0.0	B	2.35	5.12	Loam	0.31
TN098	1.0	C	3.98	4.82	Loam	0.32
TN107	1.0	C	6.34	4.84	Loam	0.28

Table 4-78. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201250. More information is provided in Watts Bar-Appendix IV

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Bledsoe	9,669	10,650	4.78	462	509	10.2
Rhea	24,344	27,672	12.39	3,016	3,428	13.7
Totals	34,013	38,322		3,478	3,937	13.2

Table 4-79. Population Estimates in Subwatershed 06010201250.



Figure 4-64. Location of STORET Monitoring Sites in Subwatershed 06010201250. More information is provided in Watts Bar-Appendix IV.

4.2.L.ii. Point Source Contributions.



Figure 4-65. Location of Active Mining Sites in Subwatershed 06010201250. More information, including the names of facilities, is provided in Watts Bar-Appendix IV.

4.2.L.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
452	1,003	58	<5	48	<5

Table 4-80. Summary of Livestock Count Estimates in Subwatershed 06010201250. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bledsoe	186.2	186.2	0.9	2.3
Rhea	126.5	126.4	1.7	4.7
Total	312.7	312.6	2.6	7.0

Table 4-81. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 06010201250.

CROP	TONS/ACRE/YEAR
Grass, Forbs, Legumes (Mixed Pasture)	0.34
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.52
Corn (Row Crops)	3.96
Soybeans (Row Crops)	4.31
Wheat (Close Grown Cropland)	6.70
Legume Grass (Hayland)	0.42
Grass (Pastureland)	0.51
Forest Land (Grazed)	0.00
All Other Row Crops	4.45
Grass (Hayland)	0.17
Conservation Reserve Program Land	1.00

Table 4-82. Annual Estimated Total Soil Loss in Subwatershed 06010201250.

4.2.M. 06010201260.

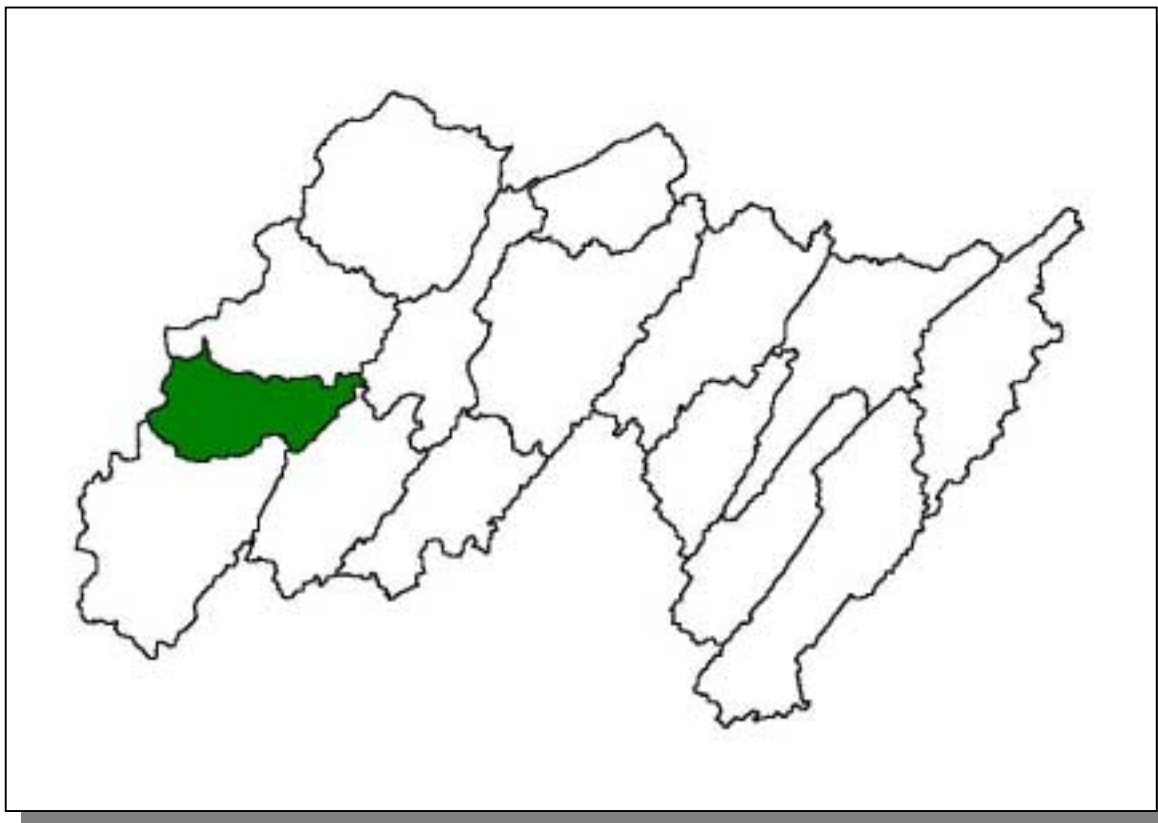


Figure 4-66. Location of Subwatershed 06010201260. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.M.i. General Description.

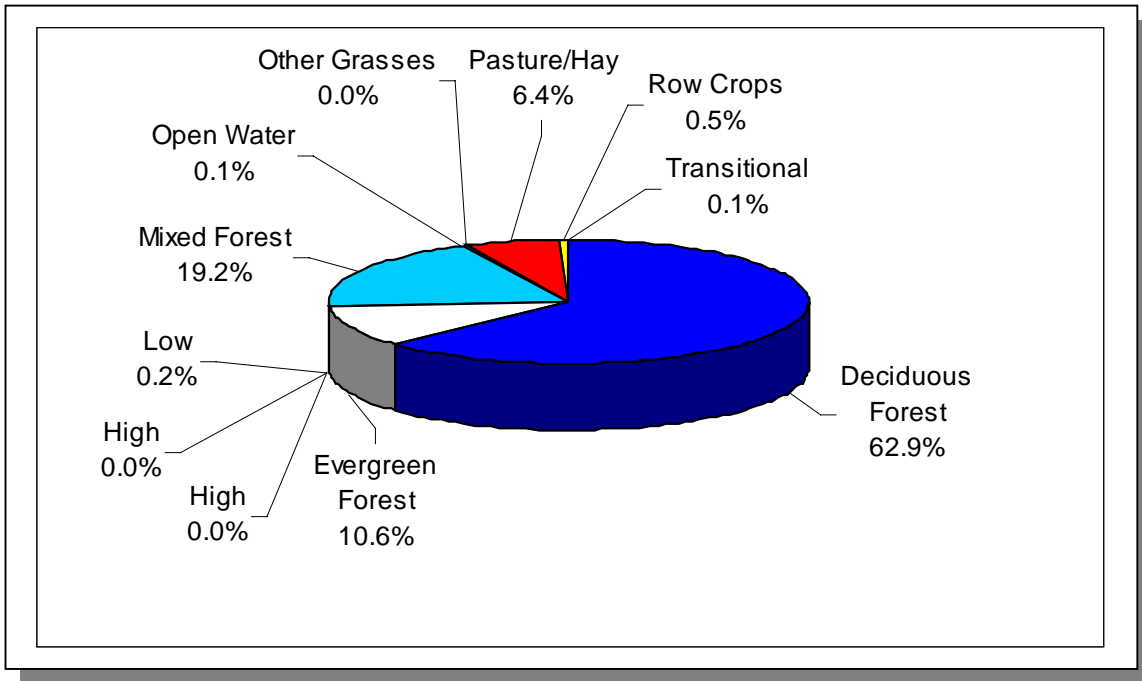


Figure 4-67. Land Use Distribution in Subwatershed 06010201260. More information is provided in Watts Bar-Appendix IV.

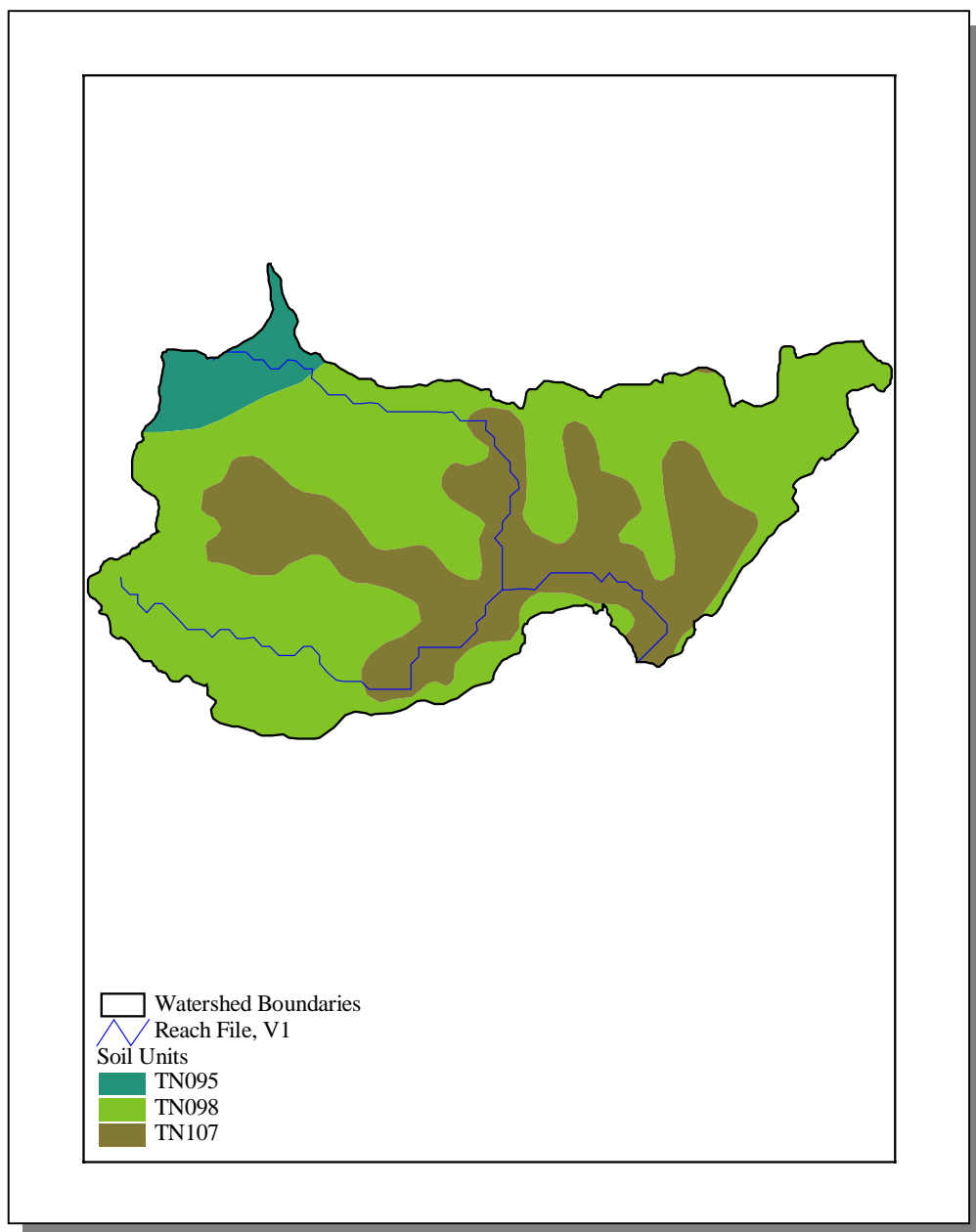


Figure 4-68. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201260.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN095	0.0	B	2.35	5.12	Loam	0.31
TN098	1.0	C	3.98	4.82	Loam	0.32
TN107	1.0	C	6.34	4.84	Loam	0.28

Table 4-83. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201260. More information is provided in Watts Bar-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Bledsoe	9,669	10,650	2.79	270	297	10.0
Cumberland	34,736	43,217	0.35	120	150	25.0
Rhea	24,344	27,672	4.87	1,184	1,346	13.7
Totals	68,749	81,539		1,574	1,793	13.9

Table 4-84. Population Estimates in Subwatershed 06010201260.

4.2.M.ii. Point Source Contributions.



Figure 4-69. Location of ARAP Sites (Individual Permits) in Subwatershed 06010201260. More details may be found in Watts Bar-Appendix IV.



Figure 4-70. Location of Active Mining Sites in Subwatershed 06010201260. More information, including the names of facilities, is provided in Watts Bar-Appendix IV.

4.2.M.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)					
Beef Cow	Cattle	Milk Cow	Chickens	Hogs	Sheep
248	557	32	<5	35	<5

Table 4-85. Summary of Livestock Count Estimates in Subwatershed 06010208130. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bledsoe	186.2	186.2	0.9	2.3
Cumberland	320.3	320.3	5.9	22.5
Rhea	126.5	126.4	1.7	4.7
Total	633.0	632.9	8.5	29.5

Table 4-86. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 06010201260.

CROP	TONS/ACRE/YEAR
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.58
Grass (Pastureland)	0.53
Grass, Forbs, Legumes (Mixed Pasture)	0.36
Forest Land (Grazed)	0.00
Corn (Row Crops)	4.84
Soybeans (Row Crops)	4.53
Other Vegetable and Truck Crops	14.05
Grass (Hayland)	0.66
Legume Grass (Hayland)	0.49
Legume (Pastureland)	0.15
Wheat (Close Grown Cropland)	6.17
All Other Row Crops	4.45
Conservation Reserve Program Land	1.00

Table 4-87. Annual Estimated Total Soil Loss in Subwatershed 06010201260.

4.2.N. 06010201270.

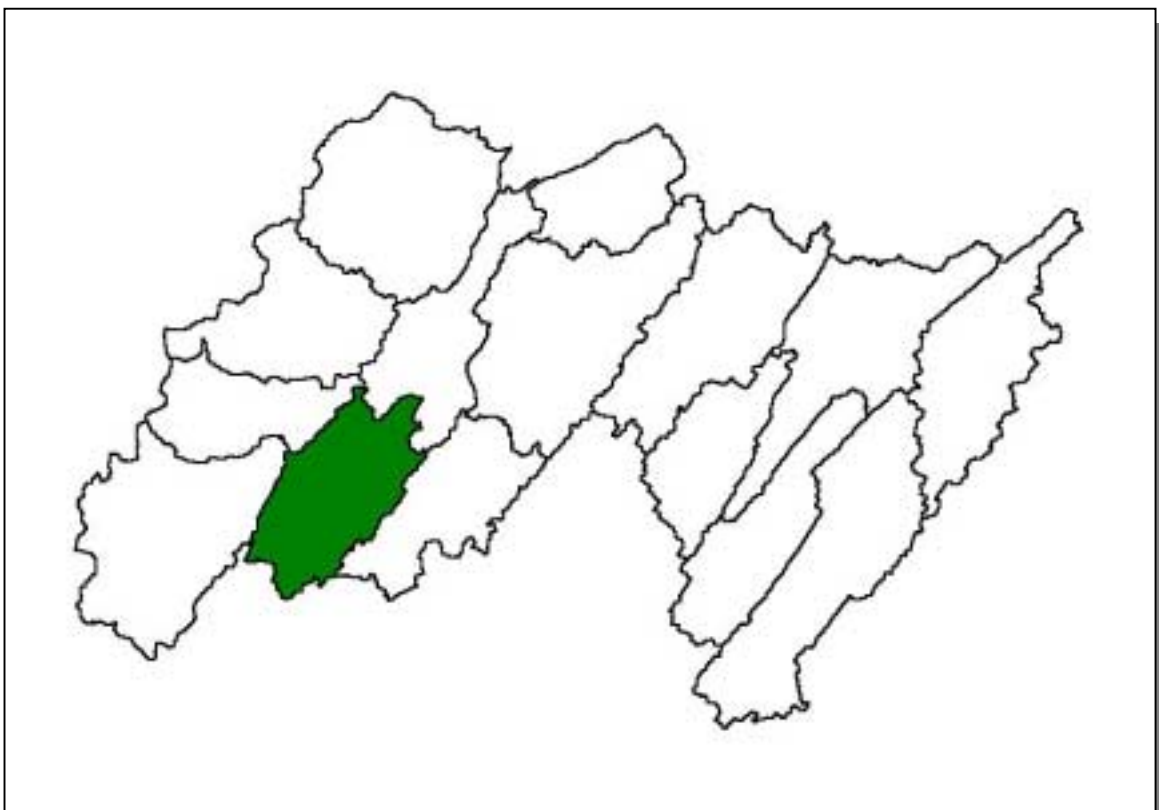


Figure 4-71. Location of Subwatershed 06010201270. All Watts Bar HUC-14 subwatershed boundaries are shown for reference.

4.2.N.i. General Description.

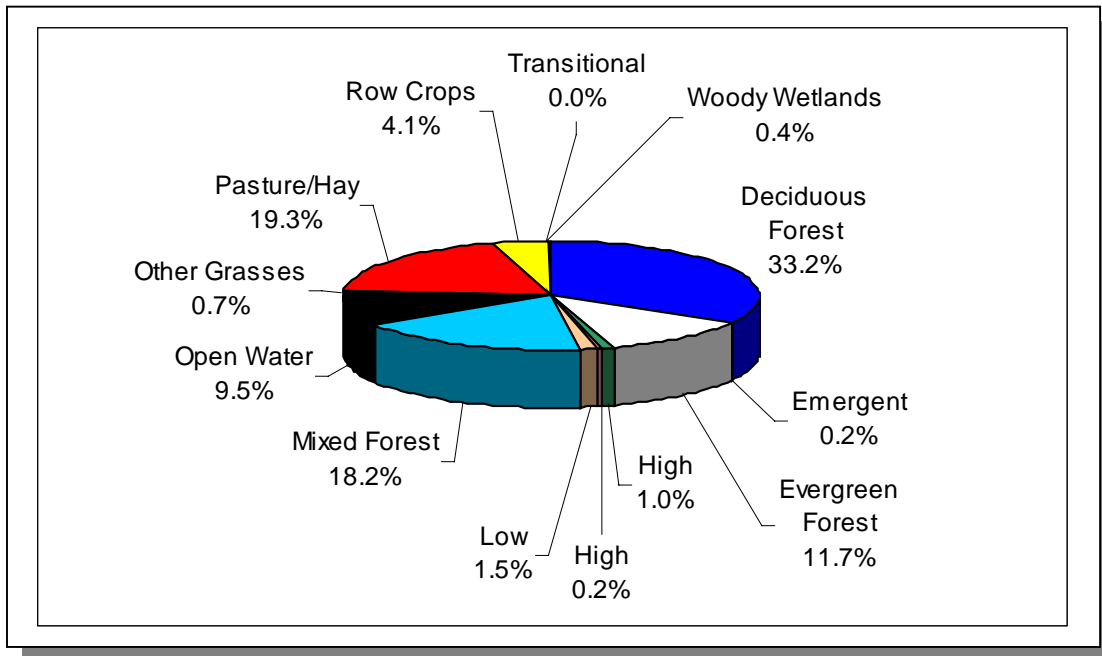


Figure 4-72. Land Use Distribution in Subwatershed 06010201270. More information is provided in Watts Bar-Appendix IV.

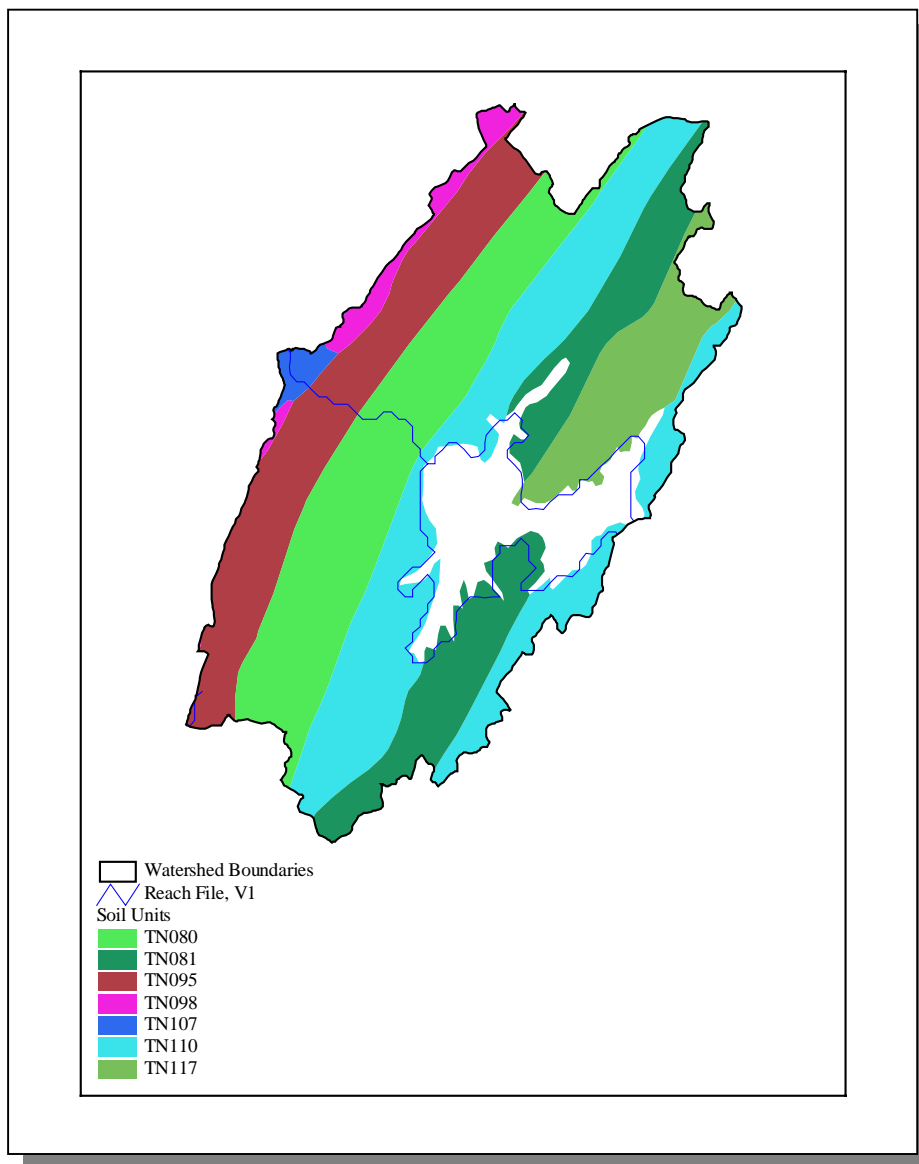


Figure 4-73. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201270.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN080	1.00	C	1.38	5.16	Loam	0.35
TN081	2.00	C	1.41	5.48	Silty Loam	0.35
TN095	0.00	B	2.35	5.12	Loam	0.31
TN098	1.00	C	3.98	4.82	Loam	0.32
TN107	1.00	C	6.34	4.84	Loam	0.28
TN110	0.00	B	2.22	4.96	Loam	0.31
TN117	1.00	C	2.06	5.16	Loam	0.37

Table 4-88. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 06010201270. More details are provided in Watts Bar-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Rhea	24,344	27,672	12.47	3,037	3,452	13.7

Table 4-89. Population Estimates in Subwatershed 06010201270.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Spring City	Rhea	2,199	967	741	224	2

Table 4-90. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 06010201270.

4.2.N.ii Point Source Contributions.

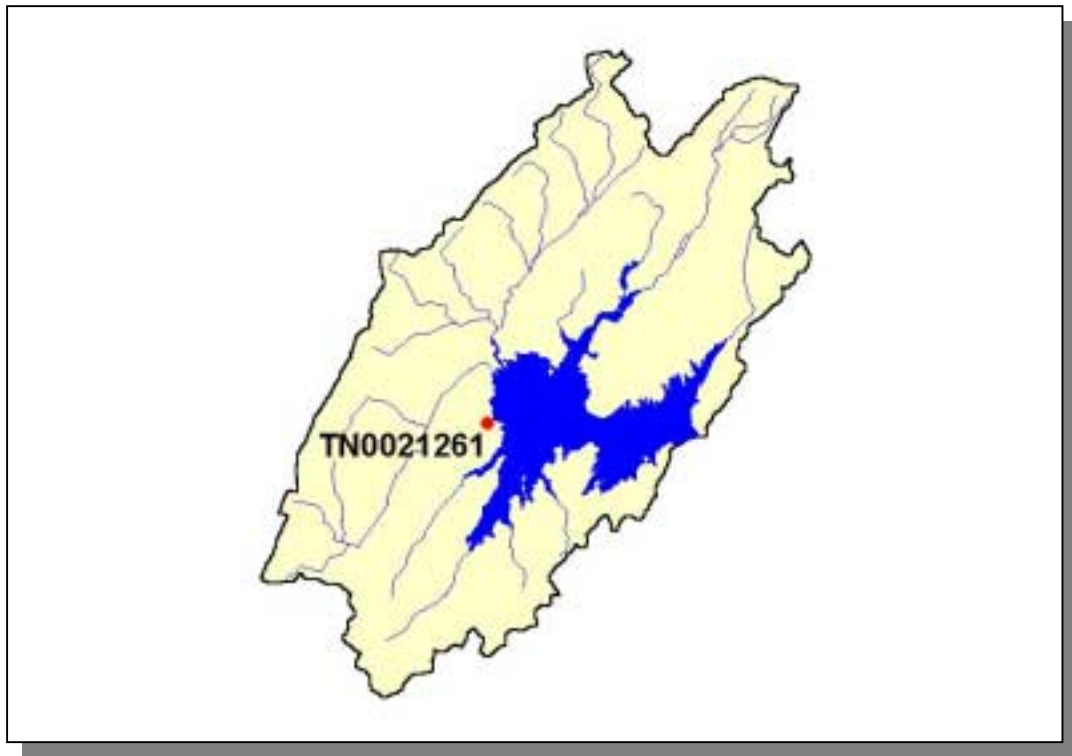


Figure 4-74. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 06010201270. More information, including the names of facilities, is provided in Watts Bar-Appendix IV.

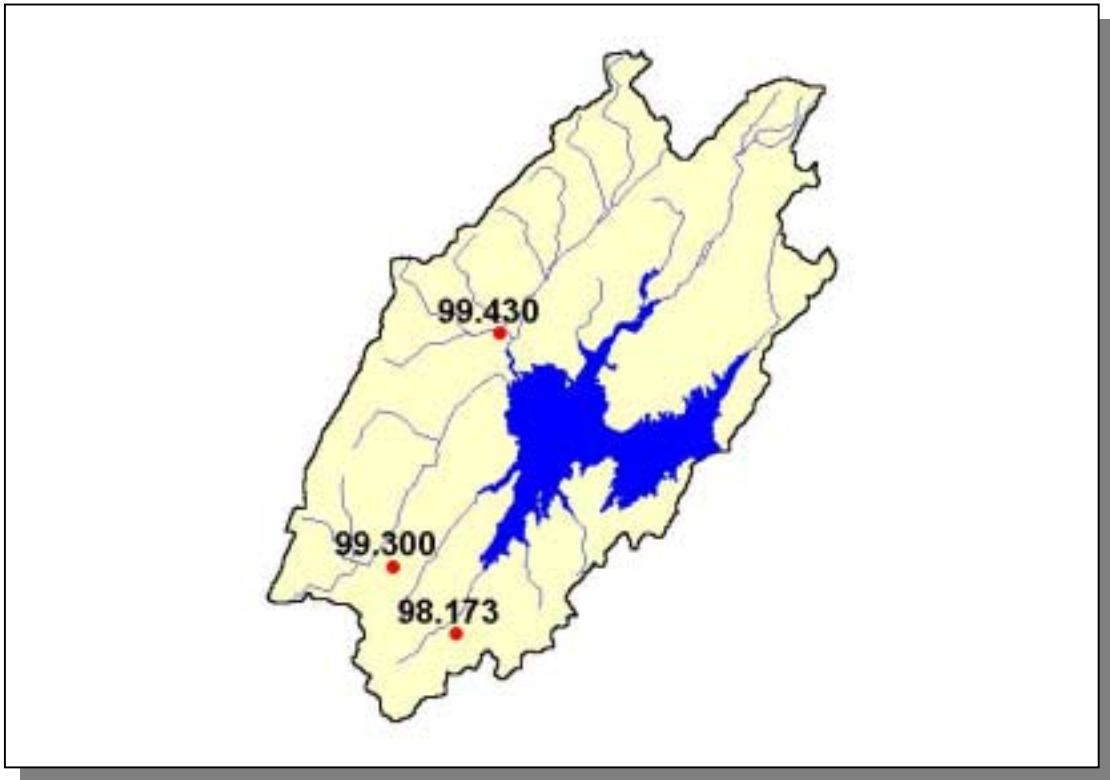


Figure 4-75. Location of ARAP Sites (individual Permits) in Subwatershed 06010201270.
More details may be found in Watts Bar-Appendix IV.

4.2.A.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List

There is one NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 06010201270:

- TN0021261 discharges to

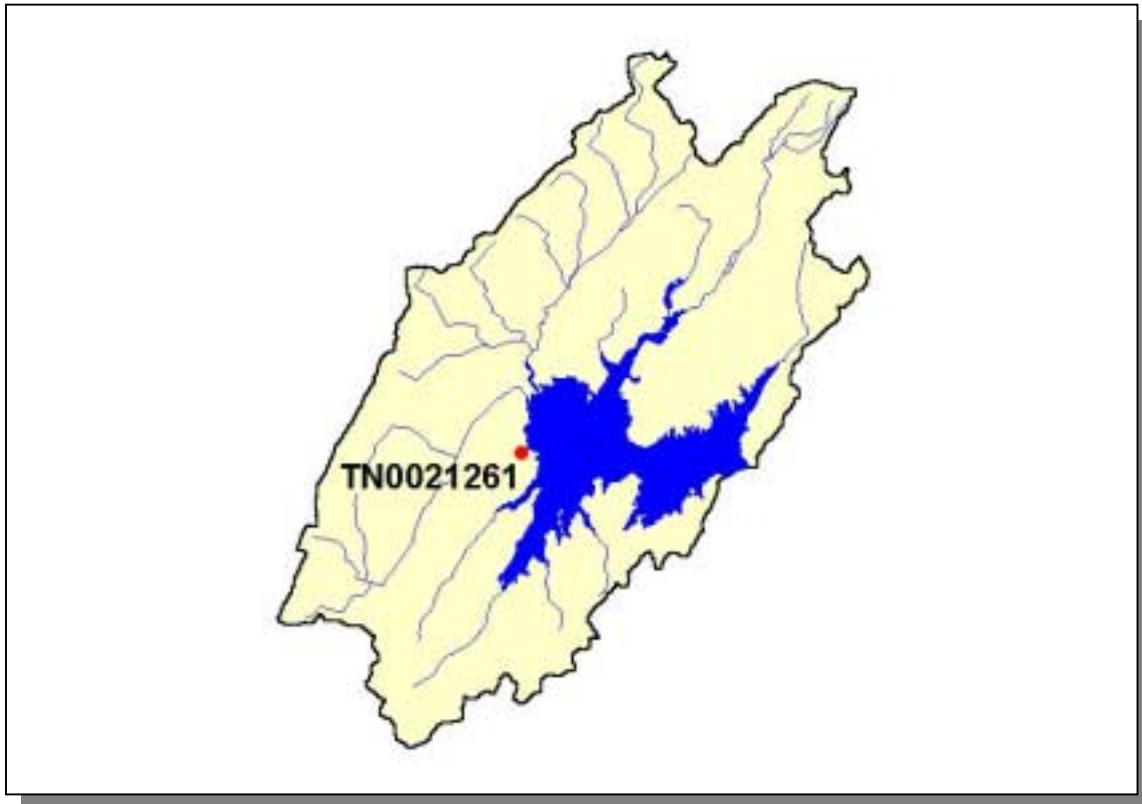


Figure 4-76. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 06010201270. The names of facilities are provided in Watts Bar-Appendix IV.

PERMIT #	7Q10	1Q20	30Q2	QDESIGN	QLTA
TN0021261				0.9	0.778

Table 4-91. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201270. Data are in million gallons per day (MGD). 30Q2 data were obtained by using data in Flow Duration and Low Flows of Tennessee Streams Through 1992.

PERMIT #	CBOD ₅	FECAL	METAL	WET
TN0021261	X	X	X	X

Table 4-92. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201270.

PERMIT #	Hg	Cu	Pb	Cd
TN0021261	X	X	X	X

Table 4-93. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 06010201270.

4.2.N.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)				
Beef Cow	Cattle	Milk Cow	Chickens	Hogs
947	2,144	122	<5	146

Table 4-94. Summary of Livestock Count Estimates in Subwatershed 06010201270. According to the Census of Agriculture, "Cattle" includes heifers, heifer calves, steers, bulls and bull calves.

County	INVENTORY		REMOVAL RATE	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Rhea	126.5	126.4	1.7	4.7

Table 4-95. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 06010201270.

CROP	TONS/ACRE/YEAR
Grass, Forbs, Legumes (Mixed Pasture)	0.25
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.21
Corn (Row Crops)	0.59
Soybeans (Row Crops)	4.06
Wheat (Close Grown Cropland)	8.50
Legume Grass (Hayland)	0.07
Grass (Pastureland)	0.44
Forest Land (Grazed)	0.00

Table 4-96. Annual Estimated Total Soil Loss in Subwatershed 06010201270.